MARCH, 1933

COTTON

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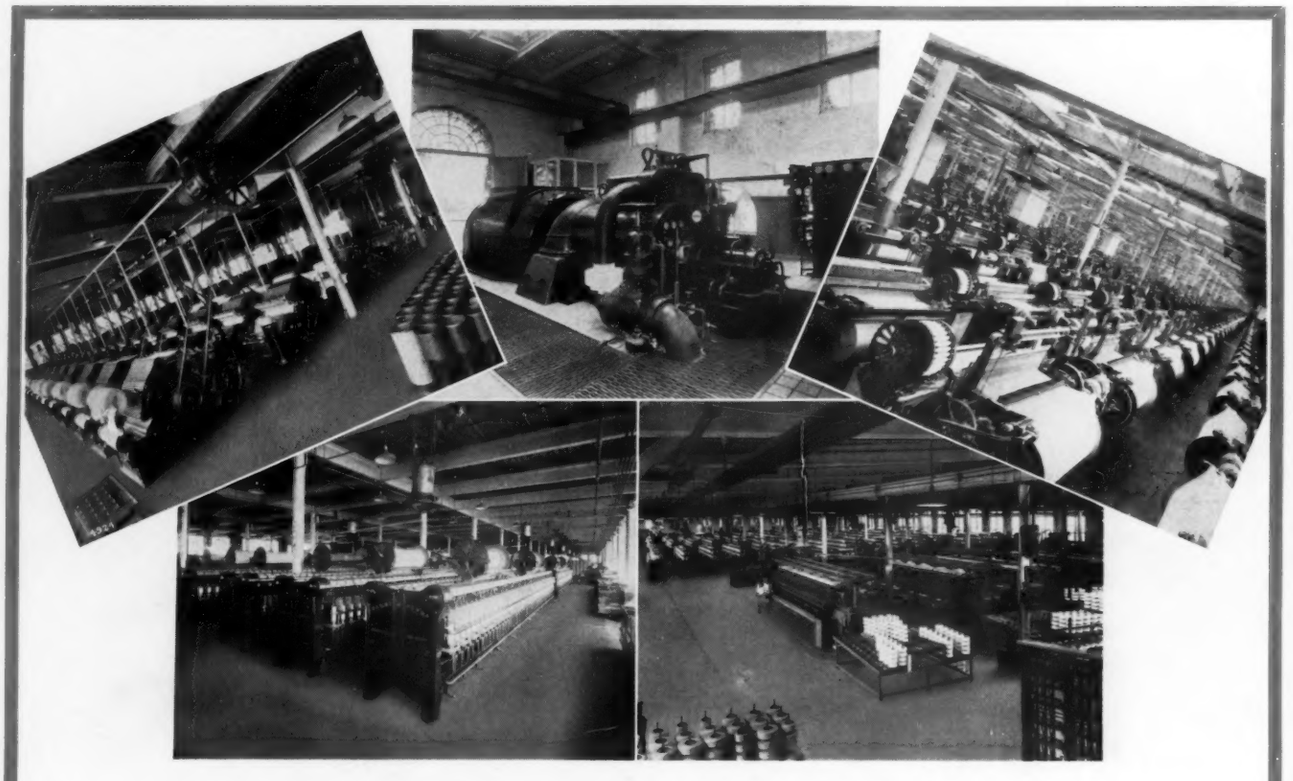
TEXTILE INDUSTRIES

MAR 13 1933



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NEVER have conditions so completely justified the investigation of every mill operation . . . it is of importance to stop even small wastes. Relocation and better grouping of machinery will speed up smooth production and substantially cut operating costs . . . and may not require the purchase of a single new machine.

Many textile executives, with foresight and initiative, are choosing TODAY as the time to work out plans to meet the strenuous competition existent under present conditions. These plans all work toward greater efficiency in your mill, a greater saving in operating costs and the consequent ability to meet competitors' prices.

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ROBERT AND COMPANY

ATLANTA INCORPORATED GEORGIA

Architects and Engineers

Table of Contents, Page 11. **KNITTING SECTION, PAGE 65** Advertisers' Index, Page 100.

Greater Gripping Power
with less tension

Sides *die-cut*—not molded—provide another exclusive and important reason for the proved efficiency of Dayton Cog-Belts

A powerful, leech-like grip—less slipping or sliding even with quick starts and stops—less loss of power—less vibration—

—these are some of the many advantages assured by the *die-cut sides* of Dayton Cog-Belts. The raw edges of the die-cut sides contact the sides of the pulley groove and form the driving surface. There's practically no wear. Nor will they ravel. Nor glaze.

Because of this exclusive construction no other V-Belt provides such unfailing gripping qualities—such a steady, uniform flow of power, regardless of speeds—all with less tension, less wear on the bearings.

And in addition to die-cut sides, Dayton Cog-Belts have many other outstanding features. They're the only belts *built to bend*. Because of their cogged inner surface and laminated construction they have far greater flexibility. Even on the smallest pulleys there's no buckling, no distortion, no "squashing" in the pulley groove—*the only V-Belt that combines maximum flexibility with crosswise rigidity.*

And economical, too—cost less to use. They're pre-stretched, so adjustments are seldom necessary. And their *life* is *twice as long* as ordinary belts.

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DAYTON, OHIO

Factory Distributors in Principal Cities and all Westinghouse Electric and Manufacturing Company Sales Offices

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3. Greater gripping power—no slipping or sliding.
4. Stretch removed—fewer adjustments necessary.
5. No dressing or lubrication.
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8. Quiet—Clean—Rugged.

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Investigate the exceptionally low cost of Dayton Cog-Belts with Day-Steel Pulleys

Built to Bend

Dayton
COG-BELT DRIVES

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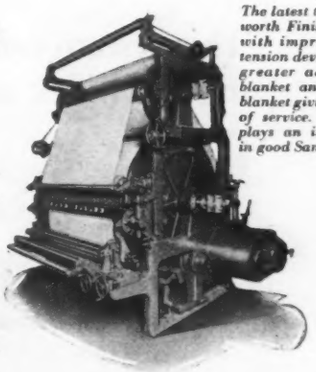

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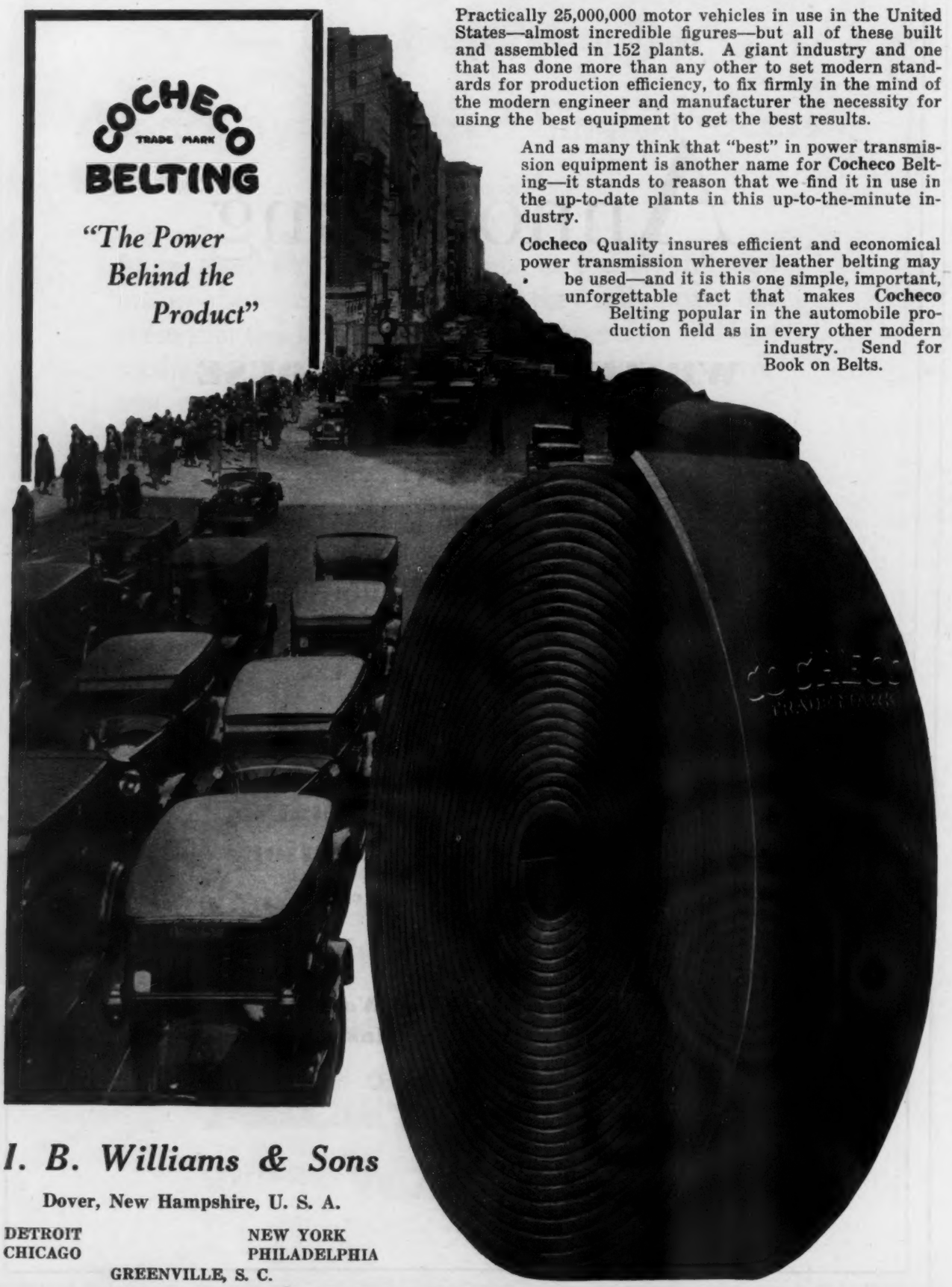

Practically 25,000,000 motor vehicles in use in the United States—almost incredible figures—but all of these built and assembled in 152 plants. A giant industry and one that has done more than any other to set modern standards for production efficiency, to fix firmly in the mind of the modern engineer and manufacturer the necessity for using the best equipment to get the best results.

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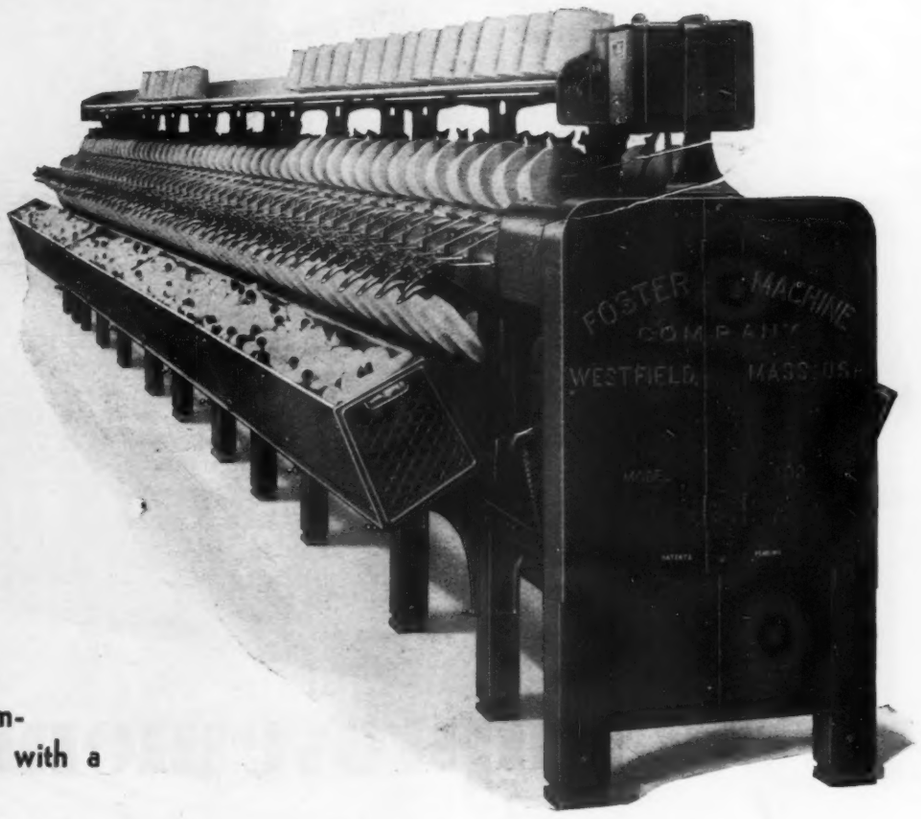
THE FOSTER MODEL 102 WINDER



The Model 102, winding cones for the Foster Cone Warping System combines high winding speed with a more important feature

LOW WINDING COST PER LB. OF YARN

The operating parts of this machine have been designed to reduce the stoppage period after "run-outs" and "slub-breaks" and secures nearer 100 per cent production than on previous models of winders and spoolers.

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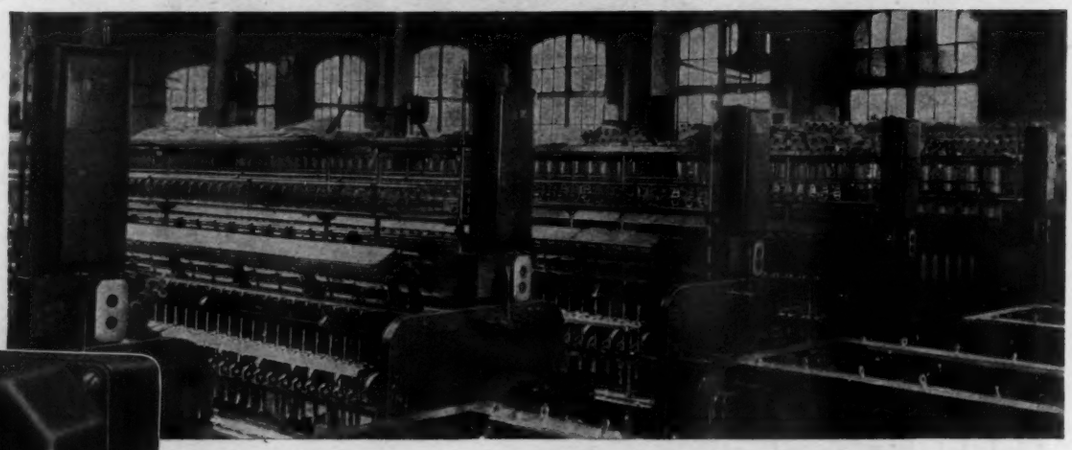

G-E Type CR2940-BS82 time-delay push-button station of the type used in connection with G-E combination magnetic switches shown in textile mill illustration (above)

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301-70

GENERAL ELECTRIC

Vol. 97 **COTTON** No. 3

March, 1933

W. R. C. SMITH, Publisher
T. W. McALLISTER, Editorial Director

ROBERT W. PHILIP, Editor

Contents

General and Technical—

This Burden of Taxation, by Dunhill Marsden ---- 13

Methods of Reducing "Seconds" ---- 16

Accident Prevention Through a Safety Committee, by J. C. Edwards ---- 17

Twist in Single and Ply Yarns, by R. A. Soniaman ---- 20

Loom Fixers' Tools, by Ivar Moberg ---- 23

Ring and Traveler Designs and Speeds, by Donald Eadie ---- 26

Current Textile Topics—

Talk of the Month ---- 29
The General Situation in Textile Markets ---- 29
New England Mill Situation ---- 30
Industry Still Contracts ---- 32
Flaws in Distribution ---- 32
Farm Rebellions ---- 32
Comment on the Cotton Market ---- 34
What the Southern Mills Are Doing ---- 34
New Textile Equipment and Publications ---- 36
Timely News Items with a Textile Slant ---- 40
Personal Notes About Men You Know ---- 44
An Old Timer Says ---- 45

How Other Men Manage—

Hey, Fellows, "Wash" Is Back—Discussing Card Settings ---- 49
Causes of Bunches and Slugs, Carding on Woolen System ---- 51
How About Fanning Out in the Spinning Room? ---- 53
Another Method of Slashing Crepe Yarn ---- 54
Short Doffing ---- 55
Stopping the Lap when Picker Knocks Off ---- 56
A Roller Coverer Discusses the Cause of Roll Leather Splitting ---- 58
Some Pertinent Card Room Questions ---- 58
Comments on December Articles ---- 59

Knitting Section—

A Study of the Machine Motions on Full-Fashioned Machines, by A. E. Parker ---- 67
Simple Tests for Soaps and Chemicals ---- 71
A Discussion of the Parts of Scott & Williams Knitting Machines (Plates X, XI, and XII) ---- 73
Preventing Accumulation of Odds in Finishing Department ---- 74
Needle Consumption, Etc., on Full-Fashioned Chiffons ---- 77
Soap Versus Oil for De-Gumming ---- 77
More Figures on Seamer Production and Needle Breakage ---- 79
The Knit Goods Markets ---- 80
Review of the Yarn Market ---- 88

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YARNS AND KNITTED FABRICS

Vol. 97
No. 3

COTTON

March,
1933

This Burden of Taxes

Textile manufacturers must, with others similarly oppressed by excessive taxation, federal, state and local, exhibit more interest in demanding more economical government to stem the tide of constantly mounting taxes

SILAS H. STRAWN, former president of U. S. Chamber of Commerce, recently compiled some statistics, indicating that the total cost of government—federal, state and local—in 1890, was $855,000,000; in 1913 it was $2,919,000,000; in 1923 it was $9,920,000,000; in 1929 it was $13,048,000,000. Now it is almost $15,000,000,000. Or on a per capita basis, in 1890 it was $13.56; in 1913 it was $30.24; in 1923 it was $88.94; in 1929, $107.37. Now it is almost $115. In other words, in 1913 the cost of government took about $1.00 for every $15.50 of the national income and now it takes about $1.00 for every $4.00 of the national income.

In 1890 the total income of the United States was about 12.1 billions, 7.2 per cent of which was required for taxes; in 1913 the total income was 34.4 billions, of which 6.4 per cent went for taxes; in 1923 the total income was 71.5 billions, of which 10.1 per cent went for taxes; in 1930 the total income was estimated at 71 billions, of which 14.4 per cent went for taxes. Today the national income is probably less than 50 billions, more than 20 per cent of which goes for taxes. During the last five years the income has rapidly and persistently diminished, yet there has been no decrease in the cost of government.

Do these figures sound any alarm to the average American tax payer? Is there any national sentiment sufficiently strong to cast a spell of terror in the hearts of our representatives, who, in Washington, from day to day, fritter away our birthright for political favor and patronage?

These figures are more appalling than intergovernmental debts, tariffs and dozens of other matters stressed in national halls.

The constant drainage of the life blood of our economic system for a distribution of favoritism and political patronage is impoverishing the nation while its various groups, in indifference to this danger, fight for some privilege or power of vantage in some other direction.

The paragraphs used in the introduction of this article are sufficient information to challenge attention and invite action, but where a group of any size becomes national minded, either in or out of Congress, powerful interests begin to put up offensives to offset any economy.

The debt service collides with the investing classes and impairs credit, the veterans' payments clash with the soldiers' vote; government salaries clash with office holders, who are supposed to operate the party machine; the destruction of the pork barrel comes in contact with the desires of home voters, who want post offices, bridges, roads, supervisors and dozens of other supports and appropriations.

The conflicts of sections and communities are often allayed by compromise in giving to each what all desire and frequently in increased appropriations.

Representative John McDuffie of Alabama says that the tendency to abnormal expansion of government in Washington may be attributed to three specific causes and the first one he lists is the "indifference of the tax payer" to the increasing cost.

Second, activities of the noisy minorities who have been intent upon loading the Federal government with new activities without regard to whether they involved duplication of service or an unjustified increase in governmental expense.

Third, willingness of state and local governments to surrender to the Federal government functions which, under our concepts of government, naturally belong to them. This tendency in such matters as education, development of agriculture, protection of forests, conservation, and a multitude of other things, has thrust upon the Federal government a multitude of tasks which were never contemplated in the formative days of the republic, and which, even in this advanced day, are often difficult to justify.

As a cure for the first evil and as an active agi-

By Dunhill Marsden

TEXTILE plants bear a large part of the tax burden in the various industrial states. Textile manufacturers are vitally interested in the subject of taxes—local, state and federal. This discussion of the ever increasing tax toll, describing the whys and wherefores, will interest you, and, we trust, stimulate you to a definite action in influencing a reduction in the expense of government . . . .

tator for tax economy consciousness there was formed last year an organization known as the National Economy League with an advisory council consisting of such men as Alfred E. Smith, Elihu Root, Newton D. Baker, Genl. John J. Pershing and others.

The first objective of its activities was to "correct the abuses that have gradually crept into legislation affecting the veterans." This was not the sole purpose of its existence as it was to educate the people along many lines as to how the government gathered money and gave it away.

The Forces of Self-Interest

The newspaper and magazine publicity received by the League was bold and brave, and its ambitious program seemed to get off to a fine start with local leagues in states, counties and cities all working for a common cause.

Then self interests began to come into conflict, voters' resistance, veterans' relief, clashing philosophies, then into the silence of oblivion went the six hundred, or to quote a modern version:

Taxes to the right of them,
Taxes to the left of them
Into the valley of debt,
Rode the six hundred.

The public, so heavily narcotized by its own specific problems, never looks away from its own domicile when it is a well known fact that what is happening in national, state, county and municipal legislatures is often more determining than the plans the individual makes.

The Shannon Committee made exhaustive investigation of the activities of government in three hundred businesses. This is another story and yet it lends its color here because deficits are always made good by appropriations from some form of taxes. It is a well known fact that the government always loses money when it goes into business. Will the Shannon report be more than any other report? Most of them are "received as information and filed" only to be dug out when some political expediency demands that type of information.

The people only become aroused when taxes are paid directly. So long as taxes are taken indirectly the average citizen sits in sombulence and says nothing because he really does not know.

The minorities with their blatant and bold statements can rush madly over the majorities. That person or group which becomes involved in debt loses its independence. A nation must not pauperize its citizens and make them incapable of survival.

Many journalists and men of national note say that we no longer have a representative form of government; that propagandists, bureaucratic blocs, and organized minorities are building the structure in which they can live and thrive.

Propaganda is insidious in its appeal. It often breaks out in religious magazines and periodicals of high type. Its message is so concealed that it is often not recognized and yet its influence is potent in reaching and building sentiment.

Political propaganda for the purpose of creating a sympathy for or against a measure is often not recognized until it is too late to give it its true value.

The combining of Federal activities in Washington, to prevent overlapping, has been thwarted by propaganda exaggerating the importance of the department and the harm that would come to the service under any change. Bureaus and departments and individuals in the departments are all organized and in touch with the political powers in Washington and the people back home. A story recently appearing in a magazine, of how power is kept in Tammany, shows that to build and maintain a political organization is a simple but patient operation.

The various interests in government are segregated into powerful minorities whose power is valueless in itself, but in connection with other groups, yields power. Appropriations and state expenditures are frequently compromises for minority advantage.

The duplication of the functions of various departments, bureaus, etc., is an excellent example of how the fight can originate and how the spoils can finally be divided. Any minority can be defeated by a union of the other minorities, hence there is great diplomacy existing among them lest political ostracism should occur.

The hundreds and thousands of demands of these people who are thinking as individuals, and not as servants, administering to the wants and welfare of a nation, are frightful in their demands. It has been estimated that last year while economy and budget balancing were rampant in discussions, bills appropriating 30 billions of dollars were introduced in Congress. And this was done in spite of the huge deficits piling up and new sources of taxation were being sought. The political aggregate forms a powerful bloc to tax reductions. There is only one way to prevent a deficit and that is to spend no more than is collected.

Overlapping in Government Activities

The Federal budget cannot be balanced by ever increasing taxes, or by an ever new source of tax levy; it must be balanced by drastically reduced expenditures.

Paternalism, overlapping, business competition of government industries must all come in for retrenchments and eliminations. Some strong leader with a national mind, who can look with x-rays into each appropriation project, then with a telescopic mind look broadly across the nation, is needed. The power to tax carries with it the power to destroy. At present one dollar out of every four paid in the gross earnings for the American people must be paid for some form of taxes. The influence of this drain on business is sure to reflect itself on earnings and most emphatically on wages. To day when every effort is being made to increase purchasing power, the tax drain is reducing wages, which in the final analysis is purchasing power.

American living standards are being lowered by excessive taxation. Taxes are always passed on to ultimate consumers and these are the people who live by the economic standards made possible through the economic controls maintained in American life.

There is too much overlapping in state and na-

tional government.

In the various departments of agriculture, state and national, there is great overlapping. It is true that as a nation there are some national policies that are imperative, but the U. S. Department of Agriculture is always aggressive in entering the states with plans and policies of duplication. Experimental stations, extension service, soil erosion investigation, various bureaus such as biological survey, animal engineering, home economics and others are indications of the many increasing duties that are expensive and always needing more money.

It is true that some of these functions are valuable; it is also true that the state has practically all of these functions and can perhaps discharge them more efficiently and economically than the national government. These various duties have a strong appeal to the agricultural population, and this is augmented by personal services, pamphlets and otherwise, so as to keep up a political sense sufficient to demand whatever appropriations may be necessary.

THE tax burden has increased almost ten fold—jumping from 855 million dollars in 1890, to 15 billion today. In 1913, the cost of government took about one dollar out of every $15.50 of national income, now it gets twenty-five per cent of that income.

This alarming increase in governmental expense—much of it unnecessary—has come largely through the indifference of the taxpayer. Unless definite action is taken to prevent it, the figure will continue to mount and industry must continue to aid in footing the bill.

The farmers' interests constitute a powerful appeal. In contrast with this, the Department of Commerce can match almost every unnecessary function of the Department of Agriculture. In making these statements, no intention is in mind to convey the idea that either is functionless, but it is meant to convey the idea that there are many useless and unnecessary functions that are expensive and could be eliminated and those that remain could be judiciously co-ordinated, and, in a general departmental reorganization, could be handled at much less expense.

A vast amount of literature and useless periodicals mailed out by the Department of Commerce is expensive and of little value to any one except the person who prepares it. The attempted surveys of business and particular industries is always so slow in coming out that they are of but little value. Many of the branch offices, both in domestic and foreign field, are functionless and serve only to fill out the theory of the Department of Commerce.

There are already in Washington more than enough people to supply the demand of any section or state. These people outside are more or less field agents to sell the department to the people and to make voter contacts for appropriations. Of course, these are not the only people. Other departments of government have the nation honeycombed with inspectors, supervisors, district managers ad infinitum, whose duty it is largely to compile reports that are never read.

The Bureau of Education and the Department of Interior have expanded into useless and functionless phases. The Department of Labor,—in fact, there is not a department in Washington that could not curtail its expenses and activities, and leave at least half of what it is trying to do for the states and these would not have to employ any more people.

All of these conditions prevail because of the indifference of the voter and because of the aggressiveness of the Bureau or the Department.

States are busy trying to get back from the government subsidies which rightfully belong to them because their lack of initiative has allowed the government to assume these functions and then tax the state to support them, and then after heavy administrative expense, hand back a depleted residue in the form of an appropriation, which makes votes for the Washington political leader that he may perpetuate himself in office.

This would be a dark picture if there were no bright spots to see. There are a few statesmen in Washington. There are some "men who would rather be right than to be President." These men can rise above self and the environs of party and fight for the salvation of the nation.

There is a strong tendency toward centralization of government, both in state and nation. There has been a strong tendency toward mergers in business and industry, but these terrible days have rather challenged this philosophy.

The states must be slow in passing their powers on to the National Government. They must look carefully at the great drain upon its citizens to keep up this ever expanding power.

That nation is best governed which is least governed. Too much interference is expensive and deters the normal and natural growth.

The nation is worth more than any one group, or interest. Self interest must lose itself in a desire to relieve the nation's citizens of the blighting disease of increased taxes, particularly at this time of decreased incomes and national depression.

South Central Section, A.A.T.C.C., Meets in Chattanooga

The annual meeting of the South Central section of the American Association of Textile Chemists and Colorists was held at the Read House in Chattanooga, Tenn., on Saturday evening, February 18th. "The Applications of Sulphonated Oils" was discussed by A. J. Kelly, of Burkart-Schier Chemical Co., and E. P. Davidson, of E. I. duPont de Nemours & Co., talked on "Developed Colors". Entertainment was in charge of W. J. Kelly, Jr.

Harold Schroeder, of Dixie Mercerizing Co., was elected chairman succeeding Noel D. White, who presided at the meeting. L. E. Millikan, of Aycock Hosiery Mills, was made vice-chairman. Homer Welchel is the treasurer, and A. J. Kelly is secretary. G. H. Dubois, of W. B. Davis & Son Company, was elected as a member of the council of the association. More than sixty members of the division and their guests attended the annual meeting.

Methods of Reducing "Seconds"

Article Two

THIS resumes an interrupted series of practical suggestions on this ever-present problem. Here the causes of seconds are divided into those of a Mechanical, Non-Mechanical and General nature, and sound methods given for the prevention of each.

Perhaps the whole story is a matter of "keeping everlastingly at it", but details count; and we invite other readers to defor this series their methods . . . . .

IN these days of highest competition, low prices and hand-to-mouth buying, it behooves every man connected with the manufacturing of cotton goods to stop long enough and ask the question: "What causes seconds and how can we remedy them?"

With this before us we have separated seconds into three groups: First, *Mechanical;* second, *Non-Mechanical,* and third, *General.*

Mechanical Causes.

Under Mechanical causes for seconds we find among the many the following major causes: Thick and thin places, bad temple, jerked-in filling, kinky filling, thin place preventer, bad harness, bad reeds, reedy cloth, wavy cloth. Thick and thin places can be helped by the let-off and take-up motions being properly set. Sand rolls should be free; journals should be built up if worn; fillet if worn, torn or rusty should be replaced. Bad temples cause bad selvages. The temple burr is often worn out, but because it catches in some places we neglect to renew them. The temple, if set too low or too high, causes stringy selvages. Bad harness should not be used at all. Occasionally a heddle breaks, but an alert weaver can find this.

Reedy cloth has caused more gray hairs than seconds. Reedy cloth is usually made because the loom-fixer or warp man is too anxious to get the next loom started, to get more picks with, too often, no regard to the quality. A loom neglected for a few minutes will result in a cut of cloth being put into seconds. Improper adjustment and setting of the whip roll will cause reedy as well as wavy cloth. There is a difference in reedy cloth and bad reeds.

The same that is said of harness can be said of reeds. The management too often saves the price of reeds and harness and pays a very high price in second quality cloth produced.

Quite a number of mills are equipped with thin place detectors. Great care should be used in setting this device. About three-quarters of an inch from the fell of the cloth is the correct position for the finger. Jerked-in filling is another cause which is a result of poor loom-fixing, assuming that, of course, the filling is being made correctly in the spinning room. We have found with the Stafford thread cutter jerked-in filling is a thing of the past, usually. Good results had been obtained on the Hopedale thread cutter by adding to the metal knife a piece of fiber of the same shape, a little thinner perhaps, which tends to hold the filling on the change.

Non-Mechanical Causes.

Under Non-mechanical causes we list: Bad selvage, coarse thread, hard size, rusty selvage, strings and mis-draws. This at once takes us to the slasher room. In the opinion of the writer the majority of bad selvages are traceable to the slasher room. Creels not in line, cylinders not level, drag rolls with journals worn —all these can be corrected by checking up at the slasher room. Hard size caused by not cooking properly, lack of controls on kettles, cylinders and size boxes, rule-of-thumb methods by slasher tenders, can be corrected with proper supervision and equipment. Loose strings left on section beams when laps are cut off, then running through size box and dried, will cause mat-ups on the loom. Rusty selvages and stains are caused by floating scum in the size box. A general check-up and proper supervision in the slasher room will prevent most of these.

General Causes.

Under General causes we name oil—slasher oil, black oil, yellow oil, blow-off oil, oily filling, oily selvage, cloth roll rust, dirty hands and dirty water. We can offer only one cause for these, this is carelessness. As it is the usual practice when employing an oiler to just give him an oil can and tell him to oil around twice a day, we pay a big price for our own carelessness in allowing this to happen. Cloth doffers and others will be inclined to keep their hands cleaner if wash racks, soap powder and rags are provided.

Rusty cloth rods cause seconds. Some mills have gotten away from this cause by using paper cores. This works out well, when the cloth tube or paper core is slightly larger in diameter than is the cloth rod.

Dirty tie-threads cause seconds. They are usually put around the arch of the loom in a bunch, where they accumulate dirt and oil and flying, then the weaver ties up an end showing a long streak of oil. A preventive for this is to use cloth tubes, cut two feet long, suspended under the arch and tied with wire or thread. Into this tube warp thread is run and cut off flush with each end. In the center of the tube is cut a small V-shaped hole. The tie threads are thus kept clean and free from flyings.

Ropy filling, cockled filling and kinky and mixed filling, as well as coarse threads and cut filling are all seconds breeders. The best remedy is to show them

(Continued on page 22.)

Accident Prevention through a SAFETY COMMITTEE

Photos, courtesy National Safety Council.

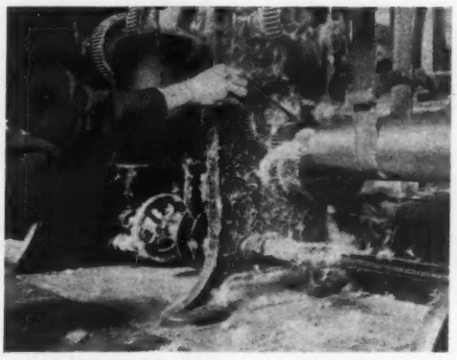
Injured by a jab from a weaver's hook, carelessly carried . . .

By J. C. Edwards
Superintendent, Martha Mills, Thomaston, Georgia

HERE are the views of a practical mill superintendent on the very important subject of safety and accident prevention. You will find in it some sound philosophy and ideas on this vital factor in plant operation; and you are invited to submit for publication your own ideas and methods for safety work . . . . . .

ARE you interested in accident control; is it worth while; and if so, what are you doing and what are you willing to do to control accidents? The writer thinks that the control of accidents is of great importance and justifies whatever efforts we may use that are necessary to control or eliminate them. I feel that each mill superintendent should be able to answer adequately the questions I have propounded.

Had the editor requested me three years ago to write an article on safety and the prevention of accidents, I would have declined because, though we thought we had tried very hard to control accidents, they continued to occur with exasperating frequency, and had we been of the quitting kind we would have accepted the situation as a natural consequence of our industrial age and acknowledged that we could not control accidents and would have continued to pay for them in life, money, and loss of service and production. We have revised our ideas, and are now working upon the assumption that accidents not only can be controlled but can be eliminated.



This method of cleaning roving frame gears resulted in an injured hand . .

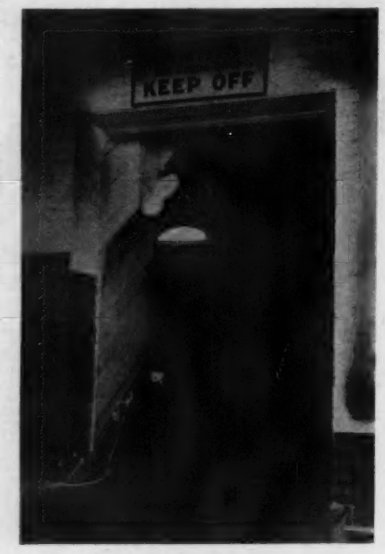
Granted that we all concede the fact that the control and elimination of accidents is worthy of our serious consideration and time, the first step toward our goal is the formation of a well balanced, representative and enthusiastic safety organization within the plant, which can and will carry out a safety campaign, and will see to it that there are no interruptions in that campaign—but will keep everlastingly at it.

Organizing for Safety Work.

It is my opinion that no one in the plant is so well suited as the superintendent to head the safety organization. Since an effective safety organization is inseparable from a good production organization, each is a part of the other. The superintendent should draft all overseers and second hands into his safety council and meet with them monthly or semi-monthly, or at other regular intervals. At these meetings previous accidents should be discussed and methods adopted that will prevent a recurrence of such accidents. Also, the safety organization should discuss and pass upon reports and safety suggestions handed in by the general inspection committee which should have been appointed (one from each department in the mill) at the previous meeting. This committee should be encouraged to look for and report everything found which might cause or prevent accidents, even though the council does not adopt all of their recommendations.

We get best results by having each one of this inspection committee's members go through and inspect a department other than his own. For instance, the card room man will inspect the spinning room, the weave room man will inspect the card room, and so on. This plan is used because a man can become so accustomed to seeing and being around a hazard in his own department that he does not see it at all, while an outside inspector will spot it at once as a hazard.

Assuming that the overseers get their section men together once each week or twice each month for general discussion, a part of their time at the first meeting after the safety council meeting should be given over to safety discussion; the proceedings of the safety council meeting should be reviewed and general safety discussions by all should be encouraged, and each man impressed with the responsibility of seeing that everyone on his job carries out safety instructions as well as seeing that all safety locks and other safety features are at all times in good shape.



Disregard, like this, for signs and instructions results in discharge . . . . .

Section men should also see that all bobbins, bottles, brooms, etc., which might cause a worker to stumble, are kept off of the floor. Belts should be inspected and repaired before they break and cause accidents. Also, a hundred other things on a section man's job, such as broken spindle whorls, bad bobbins and spools, bad cylinders, faulty shuttles, flyers, emery wheels, electric circuit, ladders, hangers, etc.—should be inspected and repaired *before* they cause accidents, not afterwards.

Each section man should be able to instill in all of his help an enthusiasm and sameness of purpose that will make everyone strive for the best safety record in the mill; and a word of praise and encouragement when deserved will help the cause greatly.

Instructing the Operatives.

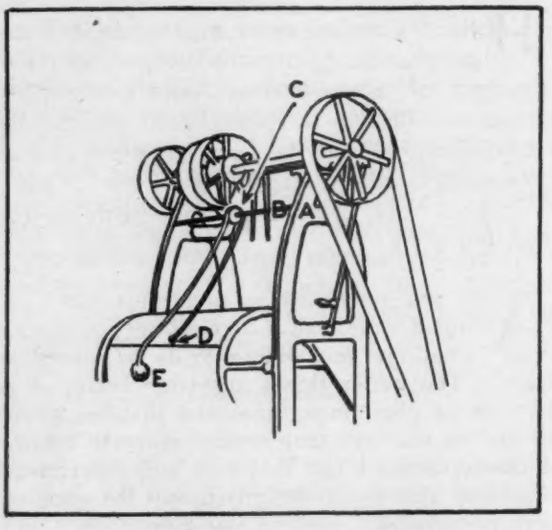
In our safety work we strive to do our part so thoroughly that an operative cannot be injured except by disobeying orders. First, one cannot enter and leave our employment department without having seen our *first* ruling, that a careless worker has no place in our organization. The applicant is given a physical examination which should reveal bad vision, old ruptures and anything which may give rise to a false claim later.

The operative is next instructed as to the safe ways in which his or her job is to be done and definite orders against dangerous practices are given, such as throwing belts on or off with the feet, using unsafe ladders, cleaning compounds without safeties, grinding on emery wheels without goggles, etc. These orders are to be strictly enforced at all times, and discharge should be the penalty for breaking these safety rules—for sooner or later an operative who breaks these rules will cost the mill money as well as tear up the organization.

It might seem hard to increase a victim's trouble by discharging him for being injured, and I would not advocate such a policy as an iron-clad rule, but when an operative is injured while doing a thing against orders or willfully disregarding our safety rules, we should consider him too much of a liability to carry in our plant, and let him out, though of course he should be spotted as a careless or disobedient operative and let out before the accident happens.

A Broken Rule Means Discharge.

We are not strong on too much oratory but depend more on firmness of purpose. When an accident occurs, my first concern is, How did it happen? Had I seen the possibility of an accident happening in a similar manner? If not, I assume the responsibility. If I had seen the possibility and had done all that could be done to avoid it and had instructed the overseer to educate the operatives in such a way that the accident could not happen if the instructions were carried out, and the operative is injured while acting contrary to these instructions, then the operative is subject to discharge. If the overseer failed to give definite instructions, then we cannot justify discharging the operative, even though he may have been guilty of carelessness, for we, the safety council, had not done all of our part.



Safety Device for Picker Hood

In this sketch of the means for lifting picker hoods, *A* is the A-frame of picker; *B*, 1¼" cross-bar; *C*, 3" grooved pulley; *D*, fastener on hood to hold ⅜" rope; and *E*, ball on end of rope.

If you have a rule against men lifting roving trucks, for instance, and a man does it and ruptures himself or mashes a foot, first find out if he was cautioned against it when he was put on that job. If so, he should be discharged. If you keep him you are not only carrying a liability but you are setting a bad example for the other operatives.

Each department should have nice sign boards displayed in some prominent place. This board should show the date of the last accident as well as the name of the injured party. In our plant the operatives dread nothing quite so much as seeing their names on these boards. One can glance at these boards and see the safety records of each department.

What *is* a good safety record? How can it be computed? Let's answer the last question first. All of us are concerned with man-hours and I know of no better or fairer basis upon which to calculate our figures for comparative purposes. Any accident which incapacitates an operative for doing his or her regular job is a lost-time accident, and the frequency and severity rate is figured at so much time per hundred thousand man hours, which means the hours run multiplied by the operatives.

A Good Safety Record.

I would say that a record of two million man hours without an accident is a good record. We have made better as well as worse records. In fact, one of our departments last year finished a record better than five million man hours without an accident, and that record was broken by an operative who was slightly injured while doing an operation contrary to instructions, and upon inquiry I learned that the overseer had personally instructed the operative against the practice which caused the accident. Needless to say, a discharge was in order, for several years ago we had installed a safety feature on that job which made it entirely unnecessary for the operation to be performed in a dangerous manner.

Good Housekeeping Helps Prevent Accidents.

Good housekeeping goes far toward making a safe plant. Keep ladders, brooms, bobbins, bottles, etc., in their place. Where knives or scissors are used and carried on the person, use scabbards for them. Keep the floors clean of grease. Don't allow spikes in the walls and posts for clothes hangers. Playing of any kind should be prohibited in the plant.

"Don't stand under hoists" is simple, yet good advice . .

Provide good, comfortable goggles for those who use them and see that they are used. Where scrubbers are at work, have danger signs for them to place at wet floors. Mark "Danger" on all doors or casings which should not be removed while a machine is in operation. There are but few such dangers in a mill that cannot be conveniently guarded with some kind of a safety lock. Oftentimes a simple device will remove a hazard from a dangerous job if we will really study the cause.

As a case in point, some years ago we had two men ruptured while raising the hood to clean out the screens on pickers. This is not such a heavy lift but the awkward position in which the operative had to stand caused the injury, so we rigged up a pulley on the cross-bar to the A-frame, pulled a rope through it, fastening one end to the hood. Now the operative stands in front of the calender head and merely pulls a rope to lift or lower the hood. A very simple safety lock can be applied to a machine which has a belt shifter, making it impossible to start the machine until the safety is in running position.

Without meaning to be critical, in a mill I visited recently, in going through the plant with the superintendent, we came to an open elevator shaft—not even a gate there—located in a very busy part of the plant. The elevator was above us, the superintendent grabbed at the starter rope, and gave it a yank; the elevator came down and he jumped on it while it was running, stopped it, and backed up for me. In all, that elevator hatchway had five openings on different sides and floor levels, and the superintendent told me that he could not afford an elevator man to run it. Frankly, if that elevator were in our plant I would have had night-mares all night every night from worrying about it until proper safety measures had been provided for it.

New Institute Cost Manual.

A SECOND edition of the Cotton Textile Institute's cost manual, entitled "A Method of Predetermining Costs in Cotton Yarn Mills", has just been announced. This reprinting was found necessary to meet a continuing demand.

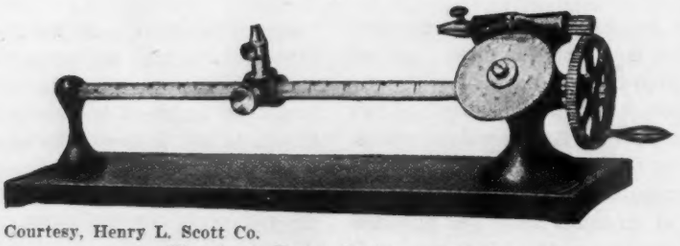
This treatise was originally published by the Institute two years ago. Advices from Institute headquarters state that copies were distributed to every cotton mill management in the United States as well as to leading cost consultants, textile schools and other educational institutions. The manual was favorably reviewed in technical publications in this country and abroad and has been commended by many elements in the trade, by cost experts, economists, bankers and government officials. It is understood that a number of textile schools are employing it as a textbook or reference work and that copies have been sent on request to many foreign countries.

The text and the data employed in the new edition are identical with those of the original. It is stated that no need was seen for any alteration in the cost procedure originally demonstrated because no important criticism of the method was received.

Sydney P. Munroe, assistant to the president of the Cotton Textile Institute, who has charge of the Institute's cost engineering work, reports that the manual has been used widely by cotton mill managements in devising or modifying their cost methods and that this fact is borne out by the notably rapid increase in the prevalence of sound cost methods in the industry during the past two years.

Eastern N. C. Division to Meet at Raleigh on Thursday, April 27th

Announcement has been made that the Eastern North Carolina Division of the Southern Textile Association will hold its spring meeting at the textile school, N. C. State College, Raleigh, N. C., on Thursday, April 27th.



Courtesy, Henry L. Scott Co.

Fig. 1—A Twist Tester for Yarns

Twist in Single and Ply Yarns

Methods and Tools for the Determination of Turns Per Inch

By R. A. Soniaman

THE amount of twist in single and ply yarns, and the degree of variation, should be studied carefully by every manufacturer. In this article Mr. Soniaman describes the means by which these determinations may be made, and gives also the results of some tests on both coarse and fine numbers of yarn . . . . . .

THE amount of twist per inch which will give a ply-yarn or thread the maximum of strength, or which will bring out the utmost of luster in an embroidery thread — and do these things at a minimum cost for the twisting operation —is a subject well worth a reasonable amount of research work.

With a tendency in the textile industry for diversification, there are no doubt many firms who, having made a staple line of yarns or threads from a certain grade of material, inserting a definite number of turns per inch, now find themselves looking forward to other constructions from the manufacture of which they hope to reap a profit.

Obviously the cost of inserting the twist must be a prime consideration; for of two twists that give identical results, whether the object is strength, smoothness, or luster, the one with the smaller number of turns per inch will have the lower manufacturing cost, other things being equal.

The arrangement of twist to get the best possible luster from mercerized yarns and threads has been the object of considerable research work in recent years. Formulas based on the results have been worked up. It must be remembered, however, that the formulas thus developed are for a distinct set of conditions, and if any (even one) of them is altered the results may be quite different from those obtaining when the original conditions are adhered to.

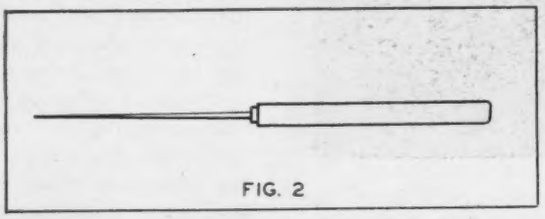


FIG. 2

A good plan, when it has been definitely settled as to what construction of yarn or thread is to be manufactured, is to run a series of tests, changing only one condition at a time, and thus ascertaining which twists will bring out the best results for the type of cotton used, the extent of singeing required, the degree of mercerizing used, etc.

The method for finding the best luster twist in embroidery or fancy yarns and threads is also applicable for yarns and threads in which strength is the most weighty consideration. The U. S. Bureau of Standards and some of the textile schools publish, from time to time, the results of their research work along this line. These papers are valuable in that a scrutiny and dissection of the facts they contain may save a firm considerable loss of time in experimentation, or they may furnish a clue to the set-up required by the firm.

If, however, the firm is contemplating the manufacture of an article similar to one already on the market, it is advisable to purchase some units of the competitor's product and then ascertain the twist. The twist thus obtained, nevertheless, should not be considered as the last word in correctness, but it certainly can be used as a guide for the initial production of the article, and experiments can be conducted later for improvement. In this connection it may be said that a survey of similar products of some of the leading manufacturers shows that there is a difference—and sometimes a considerable one—in the twist inserted in threads and embroidery yarns of the same size.

For the concern which is already producing as varied a line of twisted products as it cares to manufacture, there is usually an opportunity to cut down the cost of manufacture and to enhance the strength or luster of a yarn or thread by doing a little research work.

For example, of two threads on the market one of which has a finishing twist of 25 turns per inch, and the other a twist of 23 turns per inch, which is the more economical to manufacture? A simple calculation will show the savings to be effected by the lesser

twist. Assuming that the spindle speed is the same in both cases on the twister, say—7,000 r. p. m., then the theoretical delivery of the front roll for the 25 twist will be the quotient obtained by dividing the spindle speed by the turns per inch, i. e., 300 inches. The delivery for the 23 twist on the other hand is 326 inches per minute, or an increase of about 9 per cent greater. If now it be further assumed that the labor cost of the product from the frames with 25 turns per inch is $10 per 2,000 pounds, then the cost for the same quantity at the 23 twist will be only $9.17. This is a saving surely worth a bit of experimentation!

The tools for the ordinary determination of twist are very simple. A twist counter similar to the type shown in Fig. 1 is used for untwisting the threads, the length tested at one time being usually 10 inches. For separating the plies after untwisting, a knife with a sharp point can be used. Better still, the little implement in Fig. 2 makes a very efficient device for insertion among the untwisted strands, and its cost is only nominal.

In testing the twist of single yarns it is usual to take only a 1 or 2 inch length owing to the difficulty of accurately ascertaining the twist on a longer stretch of material. On fine counts of high twist, a one-inch length is probably the limit that can be made to yield reasonably correct results in the conventional way.

There are several devices on the market for taking the twist of single yarns for lengths of five and ten inches. However, these contrivances should be tested out exhaustively before putting the stamp of precision testers on them. Nevertheless the fact that such instruments are finding their way to the market is an indication that serious attempts are being made to find some simple way of ascertaining the twist of single yarns. The idea is to eliminate the time-consuming present practice of taking a one-inch length with its extremes in individual results and the element of uncertainty even with the average of such results unless a considerable number of twist determinations are made.

The truth of the foregoing will be seen from the accompanying 20 twist determinations, Fig. 3, made from 1-inch lengths which were as closely together as it was possible to get them with this method of twist testing. The yarn was 125s, and the spinning frame gears were arranged to give 32 turns of twist per inch.

An average of 32.1 is derived from the 20 tests. The uncertainty of the results of taking only five tests will be appreciated if the successive four sets of five determinations, a, b, c, d, Fig. 3, are individually averaged. The resulting figures will be:

a—28.2
b—35.9
c—29.5
d—37.0

It is quite apparent that the results of any one of these would bring to mind the advisability of changing the twist gear. If, now, the gear were changed in accordance with the results of *a* and *c*, the actual twist resulting from such a change would be considerably over the required twist and a loss of production would ensue. Again, if the figures of *b* or *d* were used on which to base a gear change the actual twist then ensuing would be less than the required one, and the strength would perhaps suffer as a result, or the reduced twist would result in an increase in the breakage of ends on the spinning frame.

125s			16s		38s	
Avg. of 5 Trial Blocks	Twist	Avg. of 10 Trial Blocks	Avg. of 5 Trial Blocks	Twist	Avg. of 5 Trial Blocks	Twist
	21.5			9.0		18.5
	24.0			10.0		25.5
	35.5			10.0		23.0
	30.0			11.5		25.5
A—28.2	30.0		10.9	14.0	21.8	16.5
	28.0			8.5		22.0
	43.0			13.0		21.5
	47.5			12.5		15.5
	35.5			10.5		16.0
B—35.9	25.5	E—32.07	10.4	7.5	18.2	16.0
	21.5			13.0		26.5
	40.5			11.0		15.5
	34.0			10.0		14.5
	25.0			11.0		22.0
C—29.5	25.5		11.6	13.0	18.2	12.5
	28.0			12.5		24.5
	31.0			11.0		19.5
	15.0			8.5		17.0
	46.5			10.0		23.5
D—37.0	54.5	F—32.15	10.6	11.0	19.6	13.5
Avg. of 20 Trials	32.1		Avg. of 20 Trials	10.88	Avg. of 20 Trials	19.45
High	54.5		High	13.00	High	26.50
Low	15.0		Low	7.50	Low	12.50

Fig. 3 Fig. 3-A Fig. 3-B

Taking an average of each of the two blocks of 10 trials, *e* and *f*, gives the following figures: *e*—32.07 and *f*—32.15, which compare very favorably with the average of 32.1 for the entire 20 trials, and the 32 turns that the frame was geared for.

The inference from the foregoing exposition is that at least ten trials of one-inch lengths of single yarn should be made in order to obtain reasonably accurate results. Ten such trials are little enough when one considers that they are only equivalent to one trial of a ten-inch length of ply yarn, and no practical man would consider that the result of one such test was conclusive.

The matter of extremes in the results of tests of twist from one inch lengths of single yarn have already been mentioned. In Fig. 3, for example, the range of variation in the 20 determinations is from 15 to 54.5 turns. Such extremes would seem almost incredible, but they can be readily checked by any one who has the patience and time involved in the twist determination of fine single yarns. It is advisable when working on these yarns to use two picks, Fig. 2, if dependable results are to be obtained.

In coarse and medium counts, the variations in the averages of blocks of 5 trials is not so great as for the finer counts. This may be seen from the 20 determinations each, made on the coarse and fine yarns listed in Fig. 3A and 3B.

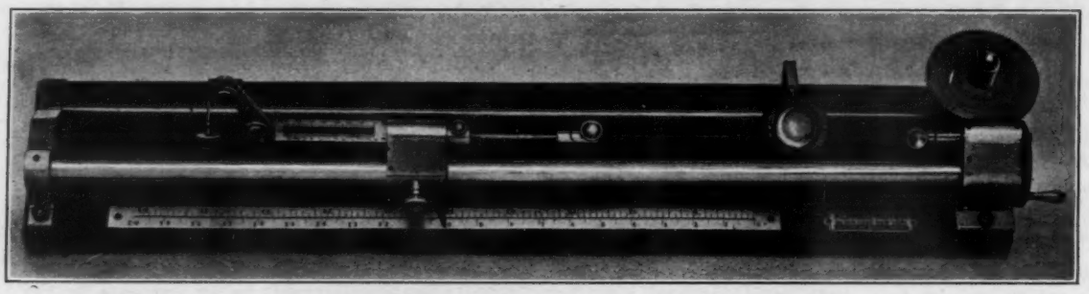
It will be noted that in Fig. 3A, a soft twisted yarn 16s, single, the average of the first block of 5 trials is approximately the same as the average for the entire 20 determinations; the greatest variation is in the third block which has an average that is 7 per cent higher than the 20 trial average. This would result in a considerable reduction in production on this coarse count if the gear changes were based on the average twist of this particular block.

The medium yarn number 38s, single, shows a variation more pronounced than for 16s. It will be readily

perceived that if the first block of 5 determinations had been used for a gear change that the mill would have been a considerable loser if several frames had been running on this count.

The three counts, 16s, 38s, 125s, which have been used as examples, illustrate a phenomenon, characteristic of twist, that is, an increasing spread between the high and low turns per inch as the twist inserted increases. For example, the coarsest count 16s, has a high not quite double that of the low; in 38s, the high is more than twice that of the low; and in 125s, the high is over three times that of the low.

The inevitable extreme range in variations found in twist tests of one inch lengths of fine single yarns would be automatically reduced when a 5 or 10 inch length is tested at one trial on a device such as has already been mentioned.



Courtesy, Alfred Suter.

Fig. 4. Another form of twist tester.

In ascertaining the twist of plied yarns and threads, the ordinary procedure (using the appliances in Fig. 1 and 2) is ample for accurate results in all cases except where the thread is polished. The dressing on some polished threads is of such a nature that it hinders the free untwisting of the thread. So much so in some instances that a shorter length, say 5 inches or less, may have to be tested in order to get reliable results.

The ordinary apparatus for twist testing can be used equally well on cotton, wool, linen, silk rayon, and so on. When accurate take-up data is desired, a more elaborate instrument such as that depicted in Fig. 4 may be used.

It is usual in plants which have many yarn numbers and various plies being twisted to have a tabulation located at some accessible place, showing the twist gear to be used for a certain twist in a particular ply and number of thread.

For the rapid calculation of the gear required for any twist, once the actual twist of a certain ply is known, the overseer and the textile technologist will find the following twist-constant very convenient.

It is derived from just two factors—the actual twist gear and the actual twist. The product of these two factors gives a dependable constant which will be appreciated by all who have had experience with the uncertainty of the constant evolved from the gearing, rolls, cylinders, and spindle whirls, of the machine. Let it be assumed that a 2-ply cotton yarn is being twisted, say 30 turns per inch, and that a 25 tooth twist gear gives this twist exactly. The constant then is 30 $\times$ 25 or 750. The writer has termed this constant "the practical working constant". And for all 2-ply cotton yarns which may be twisted on that particular frame this constant can be depended upon. Either twist gear or twist per inch can be readily obtained by simply dividing the constant by the one to get the other.

It is important that the twist be checked whenever a twister is changed from one count to another which requires a different twist. Neglect to do this may result in many pounds of spoiled yarn if the section-hand should forget to change the twist wheel. Accordingly, the twist should be tested after a few courses of yarn have been laid on the bobbins. The number of bobbins to test is a matter of opinion, but where it is possible 10 bobbins should be taken, one test being made on each bobbin, using a 10-inch length of thread for each test. Ten such trials will give a reasonably accurate average of the twist on the frame. The practice of taking only one bobbin and making one test from it cannot be too severely condemned, since a scrutiny of the results from 10 trials, one from each of 10 bobbins will disclose that there is a considerable variation among the ten bobbins. It is quite easy to see that if one test only were made that the results obtained might be one of the highest or one of the lowest figures. In either case, the figure thus obtained would be far off the average, and a costly mistake would ensue if the twist gear change were based on it.

Methods of Preventing "Seconds"

(Continued from page 16.)

up to the spinning room and carding department, as they are caused there.

Summing up, we suggest the following preventives for seconds: 1st, a careful cleaning of each loom on the warp out. 2nd, proper oiling and supervision of oiling. 3rd, general tightening up and going over of all parts necessary by the loom-fixer before tying on warps. 4th, have second-hand okeh each warp after loom has started up (a warp tag on each warp with printed items is an excellent system). 5th, a close inspection co-operation between the cloth and weave rooms. 6th, at least once a day have a meeting in the cloth room with superintendent, overseers of cloth, weaving and preparatory departments, to look at seconds, discuss them and make plans to eliminate them tomorrow. The best of all rules is: don't let the cloth room get behind, *and keep everlastingly at it.*

LOOM FIXERS' TOOLS

Often neglected, the tools and other equipment used by loom fixers and others may be made a means of efficiency or vice versa. Here are some examples of proper and improper equipment and methods . . . . .

By Ivar Moberg

YOU will be amused to helped by this discussion of a subject that is of vital importance in a weaving mill. Much of what the author says about loom fixers' tools is applicable to the equipment of section men in other departments . . . . . .

PERHAPS no other item of the weave room of today is so neglected as the loom fixer's tools. To the practical and wide-awake mill man this item should be recognized as an important one. But strange as it seems, few if any efforts have been made to raise the standard of the loom fixer's tools. When a loom fixer is hired very little attention is paid to his tools and it is left largely to his judgment as to what kind of tools he uses. The result is that in a loom fixer's tool kit can be found the most mysterious, queerest and often most useless tools the world has ever known.

Unless a person has made a practice of carefully observing the use of poor and improper tools in the weave room, he can hardly realize how costly these are to the company. In fact, so costly is the use of poor tools that if the company decided to forbid their loom fixers to use their own tools but to use tools supplied by the company, it is my personal opinion that this would be a worthwhile investment.

Unfortunately, the causes of breakage of loom parts and damaged cloth which really should be attributed to poor tools can be so easily hidden that unless the operating executive is very alert they escape detection. Herein lies the reason for the slackness with which this item has been regarded. This country has the best and most ingenious tools of any country in the world—but how often do we really see good tools in the weave room?

It is the purpose of this article to call to the attention of the practical mill man the importance of having a loom fixer use good tools of the proper construction, whether they are supplied by the fixer himself or by the company. As stated, it is my opinion that it would be a good investment for a mill to supply tools to the fixers—but that is of course contrary to current practice. However, if this article convinces the reader of the necessity of good tools in the weave room it has served its purpose well.

I would like to give some instances in which poor have "done their work" completely.

A Costly Set of Tools.

Once I saw a loom fixer whose entire set of tools consisted of a screw driver, a big monkey wrench and a broken C. & K. binder for a hammer. After having watched this fixer for a while trying to tighten up a couple of bolts in a close quarter on a magazine of a shuttle changing loom, I could not resist saying, "Go west, young man, where there are large open spaces for your wrenches". No matter in what way he turned the big awkward monkey wrench it would not take hold of the nuts so after a while the fixer gave up in disgust and started the loom. A while later the magazine laid on the floor, smashed to pieces as a result of loose bolts. The smashing of this magazine could have been prevented by proper tools, and the saving thus effected would have been enough to provide the fixer with the finest tools on the market.

The Expensive Wrenches.

Another time I observed a loom fixer tightening up a loose pick shaft box. The nuts on the bolts were of the hexagon type, as they should be, but the fixer's wrenches were of such a shape that they would not hold onto anything in the line of standard. After trying all of his wrenches he had succeeded in making the hexagon into an almost round nut. It would now have been necessary to use a pipe wrench to tighten these nuts, but since the fixer did not have any such tool he let it go as it was. A while later this loom was stopped for a broken pick shaft and a stripped driving gear, the latter having been stripped when the broken pick shaft got caught in the loom and brought it to an abrupt stop. Proper tools would have prevented this loss.

A Powerful Set-Screw Wrench.

Once I was called over to a loom by the fixer, who was having difficulty making it run. It was found that the pick shoe was set too far back, and the fixer was advised to advance it. He replied that he could not advance the shoe as both set-screws were broken off. He was advised to take out the pick shaft and have the broken set-screws drilled out. In the meantime I looked around and noticed that the set-screws in the pick arm were also broken off—a further inspection showed that a large number of set-screws were broken off on this section. That something was radically wrong was evident, but what in the animal kingdom had happened to all these set-screws that they should be broken off? The loom fixer was scrutinized very carefully to see if his muscles were so powerful, but they did not seem to be out of the ordinary. Finally it dawned on me. I went over to the fixer's tool box and there lay the brutal criminal: a 16-inch long home-made wrench es-

pecially designed by somebody for the purpose of tightening up set-screws. With a 16-inch leverage it was an easy matter to break off any set-screws, and it had been done pretty thoroughly throughout that section. I bought that wrench for half a dollar and that noontime it was secretly disposed of by a mighty heave to the bottom of the nearby river. Never again would this tool be in the hands of a fixer who was not familiar with the law of leverage.

The Hundred-Dollar Screw-Driver

A mill was making a very wide and expensive fabric. The nature of this fabric was such that it created a tremendous pull on the temples. I noticed one loom was very frequently stopped with a torn selvage. I could not resist the temptation to butt in and asked the fixer what seemed to be the trouble. The fixer replied angrily that "The damned temples will not stay set." A casual glance at the screws holding the temples to the slide proved that the slots were completely chewed up by a screw-driver. A suggestion that the fixer get some new screws to replace the bad ones, brought the reply that he put new screws in the temples almost every day, and the reply came in a tone that made it clear that he was not in a mood to take suggestions along that line.

I suspected then that the whole trouble was caused by a faultily constructed screw-driver, but as the fixer was already working up a temperature, and I did not wish to be a party to the crime, I withdrew for the time being. Some time later when passing this same loom I noticed that it was stopped and went over to see what the trouble was. There was one of the worst smashes I have ever seen in 23 years in the mill. The cloth was torn to a depth of four inches from the selvage, the heavy temple was smashed to pieces, and the reed wires were bent back almost in a 90-degree angle. How all of these things happened is hard to tell, but it is reasonably safe to say that if the temples had not slipped, these things would not have happened.

As the overseer and fixer were coming up the alley, I quickly retired to a safe place, from which I heard oratory from the overseer and fixer which would have made Floyd Gibbons green of jealousy. Neither the overseer nor the fixer seemed to know just what was the real cause of the smash, but judging from their voices they must have agreed that it was one of those unavoidable tough "breaks" that will happen now and then. When the overseer had left, I again approached the fixer, who was now in a much better mood than before to argue with. I asked the fixer to let me see his screw-driver. As suspected, the screw-driver was of a shape that would not stay in the slots of the screws, even with a tremendous pressure. It was more of a cold chisel than a screw driver. It was sharply tapered to the point from all four directions.

I advised the fixer to have the screw-driver made over into the proper shape so it would bite into the slots of the screws instead of slipping out. He did so and no further trouble was had with the temples slipping. As far as I could figure, this screw-driver had already cost the company over $100.00. The buyer of the cloth would not accept any short pieces, and as the cloth had to be cut for replacing the damaged reed, the cloth woven was useless for the purpose intended. Then, add the cost of the temple, the reed, and the labor, and the second quality cloth that this loom had been making, and the loss to the company is all out of reason.

The Making of a 10-Cent Wrench.

Once a fixer was working perspiringly on something outside his regular work. Getting interested, I approached him to find out what it was all about. He showed proudly a wrench in the making. For material he had used a broken C. & K. binder. On his bench lay four hack saw blades, completely worn out during the act of cutting out the gaps in the hard steel. Two 12-inch flat files and one round file were also worn out and only one end of the wrench partly ready. In grinding out the shape of the wrench a grinding wheel was also rendered useless, since the curving of the hard steel had worn down its straight face to one very much concave. To this add the fixer's labor and it is easy to see that the cost of making this wrench would be tremendous. Still, a far superior wrench could have been bought for ten cents.

The Wood Splitting Awl.

Another time the writer noticed some practically new picker sticks being discarded. A nosy investigation brought out that some fixers, instead of using a small hand drill, had used a square-pointed awl to make a hole for the picker screws. The awl was driven forcefully into the hard hickory wood with a hammer. The result was that the screws could not be forced into the wood sufficiently to hold the picker in position, and after a while broke off, thus making it necessary to make another hole close to the broken-off one. In a short time the picker stick was so weakened that it split for the awl and had to be discarded, still about 95 per cent good. In other cases, the wedging force of the awl being driven into the wood split the stick before it was used. Here a small hand drill would have made a great saving for the company, and also saved the fixer much unnecessary labor.

Wrenches Which Give People Work.

Once I was watching a fixer trying to tighten up the bolts in the pick shaft boxes. This fixer had more wrenches than any other fixer I had ever seen. Nevertheless, he was unable to tighten up properly the bolts in the boxes, for the wrenches were either too small or too big to fit the nuts. The fixer was in a very ugly mood and said some naughty things about the nuts and the men who put all kinds of nuts on a loom. I looked at his wrenches and noticed that practically all of them were home-made. Those which were not had been filed out to fit some mysterious sizes of nuts. When I told this fixer that one standard wrench would fit about 95 per cent of all the bolts in a Draper loom, he did not believe it. I went after a standard wrench for 7/16-inch and 3/8-inch bolts, and in less than a half a minute the bolts were

tightened up. It was also proven to the fixer that a single wrench would fit practically all of the bolts in a Draper loom. The next day the fixer came in with a set of brand-new wrenches and he was surprised to see what difference in his work was brought about with a set of standard wrenches.

Although it does not come under the heading of loom fixer's tools, I cannot refrain from citing an occurrence which shows how important it is to keep the work bench in good order. One day I noticed one of the fixers looking in his bench drawers for a certain size bolt. After a long search, which seemed like ages and during which all six drawers were taken out of the bench, he must have reached the conclusion that he did not have that bolt, and got a requisition for some of these bolts from the main supply room.

Suggested Tool Kit for Loom Fixer.

1 wrench fitting standard nuts of $\frac{3}{16}$-inch and $\frac{1}{4}$-inch bolts.
1 wrench fitting standard nuts of $\frac{1}{4}$-inch and $\frac{5}{16}$-inch bolts.
1 wrench fitting standard nuts of $\frac{5}{16}$-inch and $\frac{3}{8}$-inch bolts.
1 wrench fitting standard nuts of $\frac{3}{8}$-inch and $\frac{7}{16}$-inch bolts.
1 wrench fitting standard nuts of $\frac{7}{16}$-inch and $\frac{1}{2}$-inch bolts.
1 wrench fitting standard nuts of $\frac{1}{2}$-inch and $\frac{9}{16}$-inch bolts.
1 monkey wrench with 2-inch gap. (For emergency only).
1 6-inch adjustable ends wrench. (For emergency only.)
1 set of 4 socket wrenches fitting $\frac{5}{16}$-inch, $\frac{7}{16}$-inch and $\frac{1}{2}$-inch nuts.
1 heavy duty screw driver.
1 light duty screw driver.
1 pair of pliers with side cutter.
1 pair of reed pliers.
1 pair of round nose pliers.
1 hand drill with small size twist drills.
1 belt punch, 6 tube spring punch.
1 peg wrench.
1 machinist's hammer with ball peen.
1 hack saw.
1 center punch.
1 scratch awl.
1 small square for checking reeds and box plates.
1 12-inch combination rule and straight edge.
1 outside caliper.
1 inside caliper.
1 spirit level.
1 screw pitch gauge.
1 cold chisel.
1 12-inch flat file with handle.
1 12-inch half round file with handle.
1 8-inch round file with handle.
1 8-inch square file with handle.

An Orderly Work Bench.

Later, I wanted to know just how long it would take that fixer to find a bolt in his bench. I walked over and asked for a bolt of a size he would not be very likely to have. After looking through the drawers of his bench for more than ten minutes he finally reported, "I guess I haven't got it". I asked if he was sure he didn't have any, and the reply was "No". I asked him to come over to another loom fixer who I knew kept his working bench in excellent order. I asked this fixer for the same size bolt. He drew out one of his drawers and in less than a half minute said that he didn't have that size. I wondered if there could be any in the other drawers, to which the fixer replied that if it wasn't in that small division assigned for that kind of a bolt there would not be any in any of the other drawers. I thanked him and took the other man aside and explained to him how much time both he and the company lost through neglect about keeping the benches in order. He was told to go and clean out his bench and keep it in order. The former he did, the latter he couldn't do for any length of time.

Another very important item is that standard threads be used throughout the mill. It is exceedingly difficult, even for a good fixer, to find the right set-screw for a threaded hole if it does not have the standard threads. If, for instance, half-inch set-screws with 11, 12, and 13 threads per inch are on hand and the holes also are tapped in the same varieties, it becomes a rather difficult matter for any fixer to pick out the right kind of set-screw. The chances are that he gets one with the wrong threads, and as this can be forced partly through the hole before the binding of the threads prevents further turning, the fixer is likely to believe that the set-screw is "home" and start the loom up, only to find that the set-screw did not hold. He gets another set-screw, and even if this has the right threads, the threads in the hole might have been damaged from forcing the wrong screw in. This of course applies also to cap screws, and, to a smaller degree, to bolts. Therefore, if in the machine shop there are dies and taps of threads other than the standard they should be locked up to prevent their use for other than special purposes.

In buying bolts these should be bought with hexagon nuts. Almost every bolt in a loom is in a place not readily accessible, and while a hexagon nut can be easily tightened up—with the proper tools—a square nut might give considerable difficulty in this respect. The small extra cost for hexagon nuts is a good investment.

Washers should always be used on all bolts and cap screws so that these can be tightened up properly. In a loom, where every motion is a blow, jerk or slap, the use of lock washers is almost essential, if check nuts are not being used. The former are less expensive and do equally well; they are also more practical.

Loom Fixer's Tool Kit.

It is not a simple matter to state just what tools a loom fixer's tool kit should contain, as different kinds of looms would require different kinds of tools. However, on a section of Draper looms perhaps the tools given in the accompanying list would be appropriate both as to efficiency and convenience to the loom fixer. Such a tool kit would cost at retail approximately $15.00 and, at wholesale, much less.

Now I realize that the suggestion of the mill supplying the loom fixer's tools is most unusual. However, it would be a simple matter to work out an arrangement to take care of the risk of losing tools. A price list of each of the tools in the kit could be pasted on the inside of the cover, and if any tools were missing an agreement would compel the fixer to replace them at cost. Any broken or worn-out tool turned in by the fixer should be replaced without charge. Each tool kit should be numbered and charged up against the fixer's name. At closing time all the tool kits in use should be placed by the loom fixers in a place designated for the purpose, to be called for in the morning, or by the night fixer. The fixer would be responsible for the kit during his shift.

But, whether or not this idea appeals, the importance of good tools for fixing looms is still as great, and I hope the reader has profited by these remarks.

Ring and Traveler Designs and Speeds, as Seen by an English Maker

By Donald Eadie

A USER of rings and travelers naturally thinks about them primarily as a spinning or doubling device, but we, the makers, look upon them as the two parts of a high-speed bearing.

We have the impression that the foreigner is more interested in speed than the Englishman. The aim of all ring and traveler makers today is to make these high speeds possible, and the users can then decide for themselves whether it pays to avail themselves of them or not.

Spinning Rings and Travelers.

In Plate II-*a* you will find illustrations of the common types of spinning rings together with their appropriate travelers. The No. 2 flange ring with a flange width of 0.163-inch and the 1½ flange and 2 flange travelers take care of practically all European medium and fine count spinning. There are a few installations of rings with a flange width around about 0.157-inch, but practically none of No. 1 flange (0.125-inch).

In the United States it is quite otherwise, and I am indebted to the Whitinsville Spinning Ring Company of Massachusetts for the following information: "A generation ago No. 1 flange rings were commonly used on counts 40s and finer; ten years ago on 30s and finer with a tendency today on 20s and finer. Americans have little question as to the wisdom of this division of flanges."

This means that in spinning rings 1½-inch and less in diameter there are far more 1 flange rings than 2 flange in use.

This increasing tendency to use narrow flanges which is noticeable in America has come about because of the increased spindle speeds of the last few years. The object is to get more stock into the body of the traveler so as to withstand the harder usage. The limiting factors in this direction are the dirt and fly which collect on too small a traveler and break down the end and the possibility that too stiff and heavy a traveler will break off the ring flanges. For instance, until Indian mills started using better mixings of cotton, the 1½ flange traveler could not be used there at all.

Possibly the greatest difference between British and American practice, however, is to be found in the temper of the travelers. This country favors the medium or mild, while the United States insists on the hardest possible.

Now let us turn our attention to the rings and consider the factors which permit of the highest speeds. These are: (1) the use of the best possible material, homogeneous and free from spots and which hardens well; (2) correct design in relation to the traveler used; (3) workmanship, in which is included hardness and finish. The essentials of good design are freedom for the traveler and a well-shaped bearing.

Plate II-*b* shows a ring traveler in its normal running position on the flange of a spinning ring. You will notice that the inner toe of the traveler runs just clear of the web of the ring and that the bearing of the traveler on the ring has been kept as large as possible, so as to minimize wear. If the bearing were allowed to be at the toe it would be very small indeed and would soon wear into the ring web. We have several times come across rings where the web has been left too thick so that the travelers clipped and held it —naturally they would not work at all.

It is when we come to workmanship that we find what great strides have been made in recent years. You will quite understand that a good bearing surface is of the utmost importance to travelers running

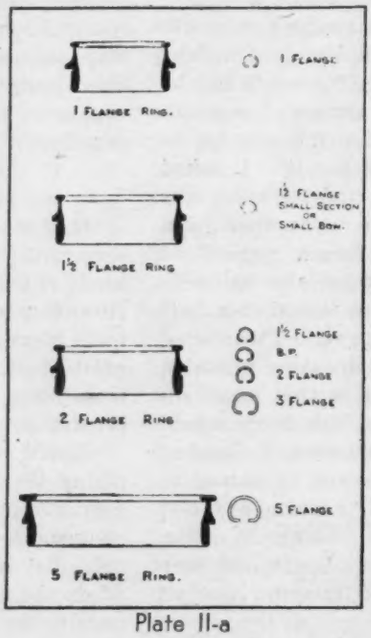


Plate II-a

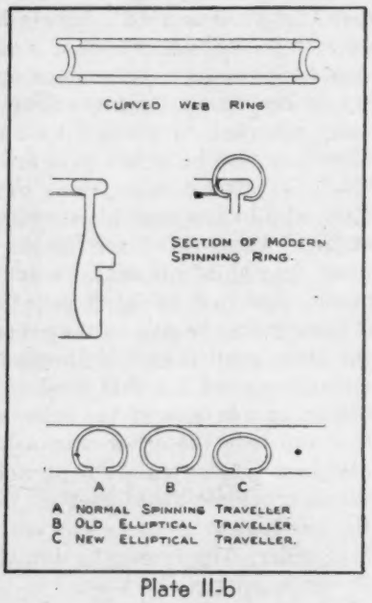


Plate II-b

This is an abstract of a paper presented by Mr. Eadie, who is a director of Eadie Bros. & Co., Ltd., of England, before the Lancashire Section of The Textile Institute. It is taken from the report in the Journal of the Textile Institute.

This discussion is presented here to give the American textile man this English viewpoint on this subject. Copies of reprints of "The Spinning Ring", "The Twister Ring", and "A Practical Analysis of Large Package Spinning", three articles that have appeared in COTTON on related subjects, will be furnished to readers upon request.

at speeds of 60 feet per second and upwards. The ring must therefore be polished and burnished to the highest possible extent so as to help the traveler to give a useful life. The effect on the traveler of a poor bearing surface is to generate heat and the effect of heat is to soften (or temper) the metal by drawing out the hardness. Tempering or softening induces changes of color in the steel, so when a traveler changes color in use it is being softened and worked beyond its useful limit.

There are various factors which are easily overlooked in connection with extremely high traveler speeds. For example, centrifugal force of the pressure of the traveler against the ring increases according to the square of the velocity, so that if you raise the speed with a 2¼-inch ring by about 10 per cent you get something like 24 per cent increase in the centrifugal force. A traveler weighing one grain and running on a 2-inch ring with a spindle speed of 10,000 r.p.m. would be thrown against the flange of the ring with a force of approximately 6½ ounces were it not for some offsetting pull of the yarn.

I have seen it stated that higher speeds are possible on larger rings because the traveler is not called upon to change direction so sharply and certainly our highest recorded speeds are on fairly big rings. For instance, three unsuccessful attempts on the Continent to spin at 90 feet per second were all on smallish rings, certainly under 2-inch. Whereas the successful American attempts are mostly on 2½-inch and 3-inch rings respectively.

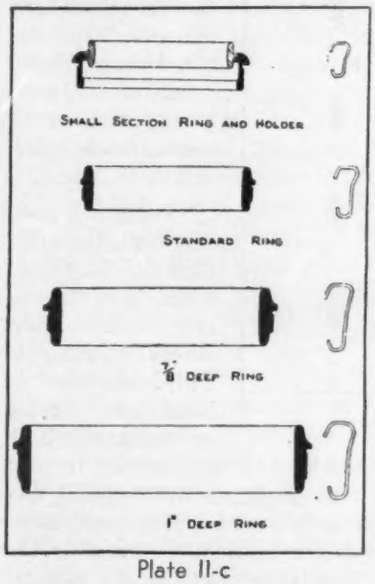


Plate II-c

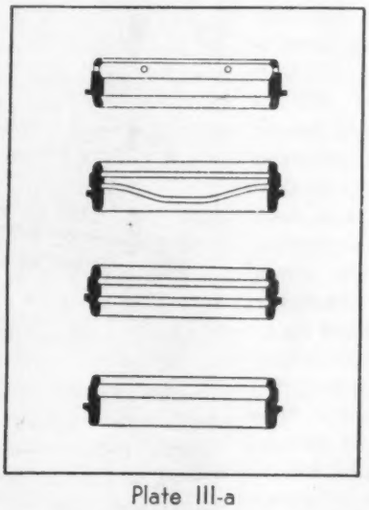


Plate III-a

At high speeds there is a tendency for the travelers to be thrown outward to such an extent that they may rub heavily on the outside of the ring. This is curable by the use of travelers with a smaller bow if other considerations allow it. A special ring has also been introduced in America, called the curved web ring, of which you will see an illustration in Plate *II-b*. No matter how far over the traveler may tilt on this ring it will not rub the outside. In the same plate you will see a new variation of the old elliptical traveler which has been recently introduced to achieve the same object.

In Plate II-*c* you will see sections of the types of doubling or twisting rings and travelers in common use. As in the case of spinning rings, they vary in size of bearing according to the work they have to do.

Doubling Rings and Travelers.

Lubrication of doubling rings has been the subject of a great many patents; some inventors set about trying to make more effective use of grease, others tried to use oil. In the common doubling ring grease is applied by hand to the inside of the ring. The first revolution of the spindle whips the traveler through the grease and I have seen an estimation that only about one-fifth of what is applied ever lubricates the traveler—the rest flies off onto the floor, etc. The grease has the consistency of clotted cream, and the traveler is shaped so as to leave a reserve at the top. As the ring warms up, the grease slowly runs down and lubricates the traveler bearing and is finally thrown off under the plates by the little end of the traveler. The advantages of grease are that it "stays put" long enough to do its job (or nearly so); it can be obtained practically stainless and it is a good lubricant when the quality is right.

Now what are the disadvantages of grease? Firstly, it has to be applied by hand to each individual ring and the frame must be stopped. If the work is either so heavy or so fine that greasing has to take place more than once per doff there is considerable loss of time. Grease is, of course, affected by the temperature of the ring and by the atmospheric temperature. Lastly, the grease thrown off by the travelers collects in a nasty black mass under the rails from whence it is a tedious process to remove it.

It has always been realized that oil would be as good a lubricant as grease but the difficulty until recently has been getting it to stay on the bearing surfaces. The various systems of wick-feeding not only overcame this difficulty but they enabled the doubler to cut out all stoppages for lubrication. Oil, of course, is practically unaffected by the changes of temperature experienced in a mill, so that unless the supply is interrupted, lubrication should remain almost constant, at all hours of the day and at all stages of the build.

Let us consider first of all a few of the special types of grease-lubricated rings. In nearly all cases the variations from the plain ring took the form of grooves which were intended to increase the reserve of grease, Plate III-*a*.

We now come to a sort of intermediate group between the grease-lubricated and the oil-lubricated rings, for which special lubricants were used, Plate III-*b*. On one of these the special lubricant was put in the well round the ring top and flowed down the holes to the traveler-bearing surfaces.

Next consider the wick-lubricated rings, which are of several kinds, Plate III-*c*. The simplest of these

was really a standard type of doubling ring with the addition of a hole bored through the wall in which a wick was inserted giving point lubrication. Another wick-lubricated ring had two holes close together with the wick laced between them in a shallow slop. A third type has one or two grooves completely encircling the inside of the ring. In the grooves are a number of holes through the wall of the ring and a wick or wicks are laced in and out as many times as are necessary to insure sufficient lubrication for the work to be done (third figure on Plate III-*c*). This type of ring has not found much favor yet outside of the United States, but over there some surprisingly fine performances have been put up. The highest traveler speed that we know of has been achieved on this ring, namely, 11,400 r.p.m. spindle speed with 2¾-inch rings on a Fletcher silk twister.

Finally, I illustrate another type of wick oiling ring of which nearly a million are in use: the fourth figure on Plate III-*c*. Sufficient oil for several days running is applied to a felt pad sunk into the existing ring rail. This reserve connects with a spring wick clipped into a helical groove on the inside bearing surface of the ring. The traveler draws off the oil by suction, the flow starting and stopping automatically.

The following are three examples of the benefits of wick lubrication:

Firm A was doing 100s/2 voile yarn with 70 turns on 1⅝-inch rings at 8,000 r.p.m. They stated that this was their maximum with greased rings but since they have adopted oil lubrication they can run successfully at 10,000 r.p.m., a 25 per cent rise in speed.

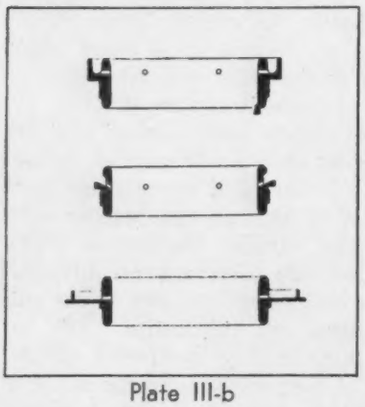


Plate III-b

Firm B was putting 50 turns of twist into real silk on grease-lubricated doubling rings, 1⅞-inch diameter, at only 5,500 r.p.m. They found it necessary to stop the frame some time before the bobbins were quite full in order to re-grease the rings. This was a slow process and had to be done with a thin-bladed knife owing to lack of room. They went over to wick-lubricated rings and are now running at 7,500 r.p.m., with no stoppages between doffs. This increase in speed is 36 per cent.

In the United States, silk twisters have been limited to speeds of 3,500 to 4,500 r.p.m. with their special rings and bar travelers. With the aid of the laced type of wick-oiling ring they are now advertising that their frames can be run up to 10,000 r.p.m.

The useful limit of traveler speed for unlubricated spinning rings has been put at 70 to 75 feet per second by three different competent authorities, a Continental ring-maker, a Continental machinist, and an American ring maker. Until a few days ago I was quite satisfied that this speed did represent something near the maximum, but my ideas have just been upset by some figures received from America. From the November issue of the American journal COTTON I have obtained the only unlubricated traveler speeds higher than these, but they are with large rings. At 88 feet per second is recorded 7s being spun on 3-inch rings at 6,900 r.p.m., and in the same mill, 13s on 2½-inch rings at 8,300 r.p.m. At 94 feet per second are recorded 10s to 16s being spun on 2½-inch rings at 8,774 r.p.m. At 103 feet we have word of 8s being spun on 3-inch rings at 7,816 r.p.m. In this case there is the additional information that when spinning finer than 8s the speed has to be reduced.

Traveler Speeds.

All these speeds are for unlubricated rings and travelers of spinning shape. Turning to travelers of the doubling shape, here are some examples in the fine range between 80s/2 and 105s/2 for comparison. In England we have examples of 100s/2 being done on two different types of patent rings at 71 feet per second, apparently without trouble. Also, in England, we have 80s/2, 75 turns, being done at 80 feet per second, 10,500 r.p.m., on 1¾-inch rings, with wick lubrication. Again we have examples from Switzerland at 82, 84, and 88 feet, the latter being done at 13,000 r.p.m. on 40 m.m. rings with ordinary grease lubrication.

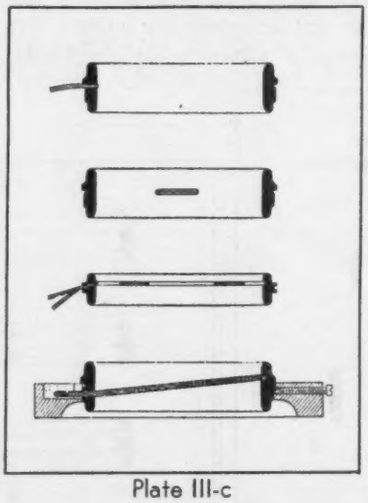


Plate III-c

There is a good deal of similarity between cars and rings and travelers. Both want careful running in. Only the best of both are capable of sustained high speeds. Finally it is the high speed merchant in both fields who enables us to progress and improve the breed. Differences in quality which pass quite undetected at touring speeds are instantly revealed by the punishing work of Brooklands track or the highest spindle speeds.

Martha Mills Again Allows for Cotton Bagging.

Martha Mills, textile division of the B. F. Goodrich Rubber Company, Silvertown, Ga., has notified its cotton shippers that the company will again pay for seven pounds of additional cotton per bale at current cotton prices, if the bales received are entirely cotton-wrapped, following a precedent established by Martha Mills in 1931. The step is taken to promote the increased use of cotton particularly as applied to the cotton industry. Martha Mills use approximately 73,000 bales of cotton annually to produce 30 million pounds of weftless cord for Goodrich tires.

CURRENT TEXTILE TOPICS. . . .

Talk of the Month

The General Situation in Textile Markets.

DEVELOPMENTS in cotton goods the first part of this calendar year demonstrated how thoroughly a "state of mind" can dominate an industry. Cotton textile stocks in the United States at the end of 1932 were much lower than at the end of any of the preceding five years. Here was the basis for an active movement of goods, but the trade was afraid of that bugaboo, the farm parity plan. After six weeks or more, however, apprehensions began to give way. The process of atrophy, aided perhaps by the introduction in the Senate of the alternative plan for disposal of government holdings and reduction of the new crop by provision to benefit farmers co-operating, wore down the fears of the trade.

By the middle of February, a definite change of spirit seemed to have taken hold. Apparently a psychological influence cannot persist indefinitely, even when the forces which lay behind it remain unchanged. For the trade had long since reached the conclusion that the farm-parity or other relief plan would not be enacted into law in the short session of Congress. It might be a later factor, but that remained to be seen. The goods market strengthened because of a growing conviction that the one factor of what legislators "might" do was being magnified and the positive elements of real need and consequent imperative buying were minimized.

To paraphrase the theatrical by-word, the business must go on. Business must be done in spite of threatened artificial measures, although it may be hampered and restricted thereby. Furthermore, betwixt the cup of proposal and the lip of reality in Congress, many things may happen. Cotton buyers first were operating on the apparent basis that the allotment plan in all its dire possibilities was as good as established. There was at least the spring demand to be filled without obstruction and this turned the market into buying which surpassed the current weekly scale of production.

Among the notable revelations of the past month were statements indicating that the financial showing of the textile industry during 1932 were painted blacker, that is "redder", than the actuality. It was averred that profits accrued to a number of mills and also to some of the merchants, though by and large the situation was disappointing. As cotton inventories are an important factor in profits, the general consistency of the raw material through the early part of this year was a matter of encouragement. The ten-year summary of the Association of Cotton Textile Merchants of New York, moreover, by the very demonstration of under-consumption is a herald of something better. A per capita drop from 71.71 square yards in 1922 to 48.86 in 1932 means a vacuum which is undoubtedly extensive in the cloths for industrial uses. As the report concludes, "economic improvement of even a reasonable degree cannot fail to uncover large shortages in these goods, the making of which will again bring per capita consumption up to a more normal figure."

Not surprising to relate, in an era of curtailment and of heavy dismantling of machines, the new installations of mill equipment in 1932 were the smallest since the merchants association began its statistical records. The toll of scrapped spindles in 1932, a total of 884,000, was supplemented by idleness of more than 5,000,000 in place for the year. Since the report found that there has been a progressive increase over recent years in use of cotton fabrics for wearing apparel, the evidence is that the return toward normal in consumption at large only awaits the turn of industrial demand. In the case of broad economic improvement, the decrease in ten years from 37,185,351 to 31,442,174 spindles will surely be felt. In fact early in February it was stated by some observers that expansion of barely more than 10 per cent in demand for staple cotton goods would overwhelm the mills in some cases, because even the machinery in place had not been kept in A-1 condition for resumption where it has been idle.

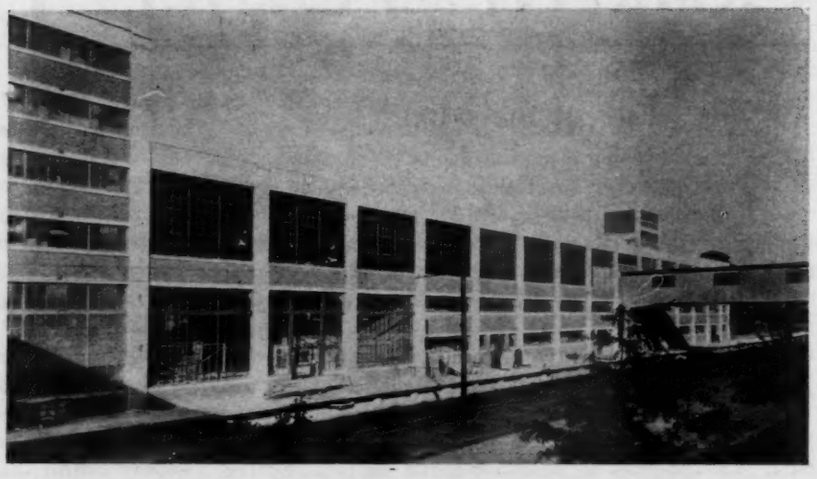
Weather conditions during the first six weeks of the year were an aggravation of subnormal business. For example, the butter-and-egg markets had reached a relatively healthy state but warm winter weather led to upsetting increase in production. The coal business was stifled and railroad business lost. Heavy clothing purchases were deferred, or passed up. The ramifications of such developments are widespread. This influence could not have permanent effect, but it could hamper the broadening of general business and prolong the period of depression. It also gave buyers a club with which to bear down once more upon prices.

In the circumstances, the continued need for careful adjustment of mill operations, to give sellers a fair position in meeting buyers on the matter of prices, has been obvious. Outstanding among the recent moves for restriction was that of the Riverside and Dan River Mills, in the adoption of a five-day week for spreading work among more operatives. At the time of writing, the course of activity to be pursued by the southern print-cloth group, as a result of its mid-February meeting, was a matter of paramount interest in the goods market. But while it was understood that curtailment of operation was a highlight of discussion, no definite statement thereupon was forthcoming.

Meantime, it is being recognized in various industries that sellers have played into the hands of buyers altogether too long and that something must be done. As indicated in the chart of Scheuer & Company, cloth brokers, production, sales and

Addition to Finishing Department at Pacific Mills, Lyman, S. C.

The accompanying illustration shows a view of the case goods storage and manufacturing building recently erected as an addition to the finishing department of Pacific Mills, at Lyman, S. C. Lockwood Greene Engineers, Inc., Spartanburg, S. C., were the engineers. This building is 300 x 100 feet, three stories, with the first two stories built of re-inforced concrete flat slab construction, and the top story of steel columns and roof framing with wood deck. The first and second stories are used for storage of cased goods and the top story is used for manufacturing and packing.



stock position in cotton goods hardly could have been better than they were in 1932. A maintenance of this sound status should give mills a means toward a more profitable price level and it is felt that manufacturers are now realizing the previous weakness in their system. The silk industry, too, has begun to chafe at conditions wherein distributors dictate to mills and are looking to controlled output as the remedy.

New England Mill Situation.

COTTON mills in New England have felt the same conditions as the industry at large the first of the year, with a moderate activity in spring fabrics leaving the centers of production far from satisfactory. There was a tendency, in the weeks of pressure for concessions, to withstand this force and the sparing purchase of raw cotton reflected the restricted volume of orders for goods. It was pointed out in the middle of February, by Dun's, that New England cotton consumption had decreased since 1929 to the extent of 51.9 per cent, although the decrease from 1931 to 1932 was only 19 per cent. The case is mitigated a little more, too, by the fact that 1932 made good gains in its second half else the comparison with 1931 would have been more adverse.

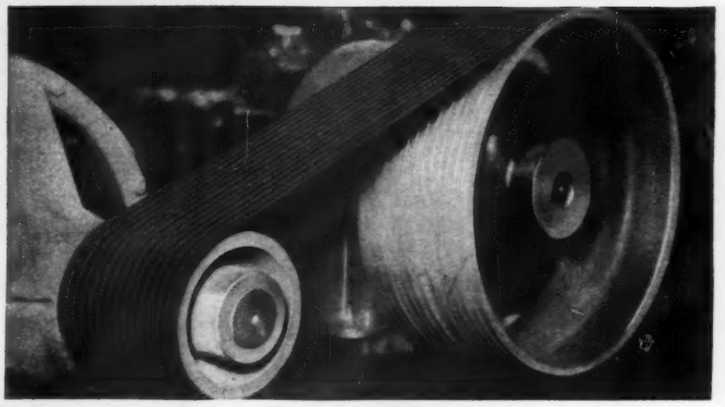
Recent months have emphasized the growing importance of rayon in the manufacture of cotton goods, or mixed textiles, to this section. A recent report announced that the rayon section of the Pacific Mills, at Lawrence, Mass., was resuming work and that the cotton end of this plant might be discontinued entirely for concentration of such production in the South. The ten-year report of the Association of Cotton Merchants of New York cited the increased use of rayon yarns as particularly noticeable in this district, "where there has been the greatest inactivity in cotton spinning spindles".

While the incursion of rayon into the field of cotton production has created inactivity in spindleage formerly used for high-count cotton fabrics, it has added to the volume of cloths from the looms by its contribution to attractiveness of construction and thereby compensated somewhat for the losses entailed. In that leading center of fine-goods production, New Bedford, the well-nigh universal feeling today is that producers hardly can avoid handling the synthetic product. A by-product of this situation, which presumably has contributed toward the raising of standards in rayon production, is the agitation of producers of cotton goods for more definite standards. Many cotton fine goods mills turned away from rayon because of early sad experience with it and, though constrained to invoke its use again, have voiced their desire for improved standards to eliminate an excess of "seconds".

Among production changes affecting New England is an interesting development in ginghams. The passing of the old gingham days was a serious blow to the well-known trade-marked lines of this region. Complete and large units of production went into the discard and large equipments of looms were scrapped. The gingham now comes back not as the common household dress of yore but as one of the novelties of the day. It had a quiet entrance as a high style light last year and bids fair to have a substantial vogue in the current year. It will not again have the disastrous consequences to mills from the shifting of style popularity, because production is not concentrated in a few mills, with heavy dependence upon the line as a staple.

Some attention was paid to the move in Washington for a 30-hour work week bill designed to spread employment, but sentiment for such Federal regulation as a remedy for the maladjustments of industry is limited. An unofficial canvass of members of the New Hampshire House of Representatives, however, was said to have shown a majority in favor of passing a 48-hour law in the state. The conference of representatives of nine industrial states in the East, called at Boston by Governor Ely of Massachusetts, indicated a sentiment in favor of uniform action by the separate states for establishment of minimum standards of working conditions for women and minors. The delegates also went on record in favor of a minimum wage law for women and minors in all the states of the Union.

A MATCHED SET OF BELTS ...A BALANCED DRIVE



GOODYEAR Emerald Cord V Belts are a special product of Goodyear's experience with textile mill requirements.

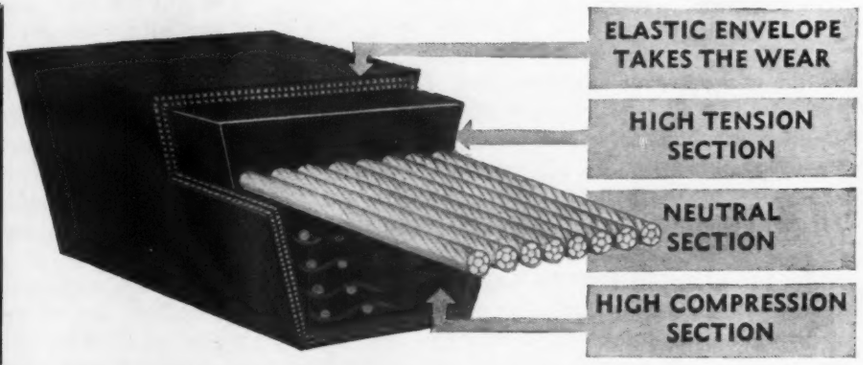
They are built with a precision that results in belts of uniform, accurate cross-section and length; used in multiple each belt carries its full share of the load, and every large, high-tensile, low-stretch cord is so placed in every belt as to contribute its full strength to the load-carrying job.

High quality Goodyear rubber in the sections of extreme tension and compression yields to those forces and does not resist them. The surface wear is taken by a fabric envelope with the weave on the bias.

In a word, Goodyear Emerald Cord V Belts embody in their design and construction the results of experienced insight into the particular duty for which they are specified.

For further information about Emerald Cord V Belts or any other Goodyear Mechanical Rubber Goods for textile mill service—such as the famous Goodyear Air Hose for machine cleaning—write to Goodyear, Akron, Ohio, or Los Angeles, California, or get in touch with the nearest Goodyear Mechanical Rubber Goods Distributor.

Goodyear is represented in the South by authorized Goodyear Mechanical Rubber Goods Distributors conveniently located with relation to your mills and able to supply promptly all Goodyear Mechanical Rubber Goods for the textile industry.



THE GREATEST NAME IN RUBBER

GOODYEAR

TEXTILE BELTING

Meantime, the digression of some mills from the voluntary control of production in recent months has shown its normal reaction in Rhode Island. Rhode Island manufacturers are not restricted like those in Massachusetts and when other districts have abandoned their voluntary curtailment they have been watched with resentment by competitors in this New England state. In fact it has come to the point where they were seriously questioning the advisability of continuing their own curtailment. If some are committed to ruthless competition, it appears, others are bound to carry it back to them.

Two recent propositions regarding mills in New Bedford are significant of the serious conditions in Massachusetts which induced Governor Ely recently to propose temporary suspension of laws which handicap the state in national competition. Jerome A. Newman, whose mill stock operations during the depression in this district have attracted much attention, because of liquidations incident to his purchases, was turned down in an offer for the control of the Potomska Mills Corporation. Walter H. Langshaw, president, organizer and successful manager of the Dartmouth Manufacturing Company, recently sent a letter to stockholders, asking that directors be empowered to lease or sell any or all assets.

STATISTICS indicate that, at the close of 1932, New England had 600,000 less spindles in place than at the close of 1931; that the South had gained 11,000 spindles during the year and other states outside of the South had gained about 250,000 spindles.

Industry Still Contracts.

While the southern states at the close of the year showed a slight gain in total spindles in place as compared with a year ago, fewer spindles were reported active and a larger number were reported wholly idle at the close of the year.

The beginning of the year indicates the same story due to the fact of a continuance in the credit structure aided and abetted by the uncertainty of legislative activities in Washington.

IN one of his most recent interviews in discussing the present situation, President Hoover says that the fatal flaw in distribution is the flow of money and credit. The financial structure did not keep up with the production structure. It belonged to a period long outgrown and outmoded.

Flaws in Distribution.

Money should be the lubricant of the economic machine and it has become the master in control. It is a master floundering and without wisdom as to its method of procedure. This has been proven by the fact that "other banking systems in the world withstood the same shocks as ours and worse without anything like our percentage of failures."

America can, and must, invent a machine of distribution equal to that of production. The problem is prodigious because of the unbalanced distribution of wealth. Therein lies the danger because unbalanced programs or remedies will be projected. "The post war world is full of tragic examples of the speedy unmanageability of 'a managed currency'."

The disparity between currency values, manifesting itself in the inequality between debtors and creditors, in international trade, in tariff walls, has so urgently pushed itself into the foreground that all of these questions are undoubtedly subjects for international discussion.

International negotiations are always fraught with suspicion and danger because national selfishness is always in the background.

The theory of national economic independence is fascinating in its contemplation but impossible in its application, and even if it were possible, it is doubtful whether national isolation is a constructive attitude to assume in world progress.

It may be wise in concluding this comment to indicate that there can be too much international co-operation as well as too little international co-operation.

FARM rebellion had its initial outbreak in the West, but now it seems to be scattering throughout the country. Newspapers have carried stories of events occurring in Kentucky, Tennessee, North and South Carolina and other southern states. Debtors and creditors are at war with each other, with each side having a certain amount of justice to spur it on to greater antagonism.

Farm Rebellions.

Taxes and debts due to mortgages are the foundation for the farm rebellion, due to the fact that the farmer's earning power is not sufficient for him to earn a living and make these payments. The average farmer feels that to sell his property on the present market is to confiscate it, and these rebellions are but indications that the farmer means to keep his farm.

In many of the states, insurance companies have announced private moratoriums. In Iowa, which led, five insurance companies have granted a suspension of payments, while in many of the other states such action is being considered.

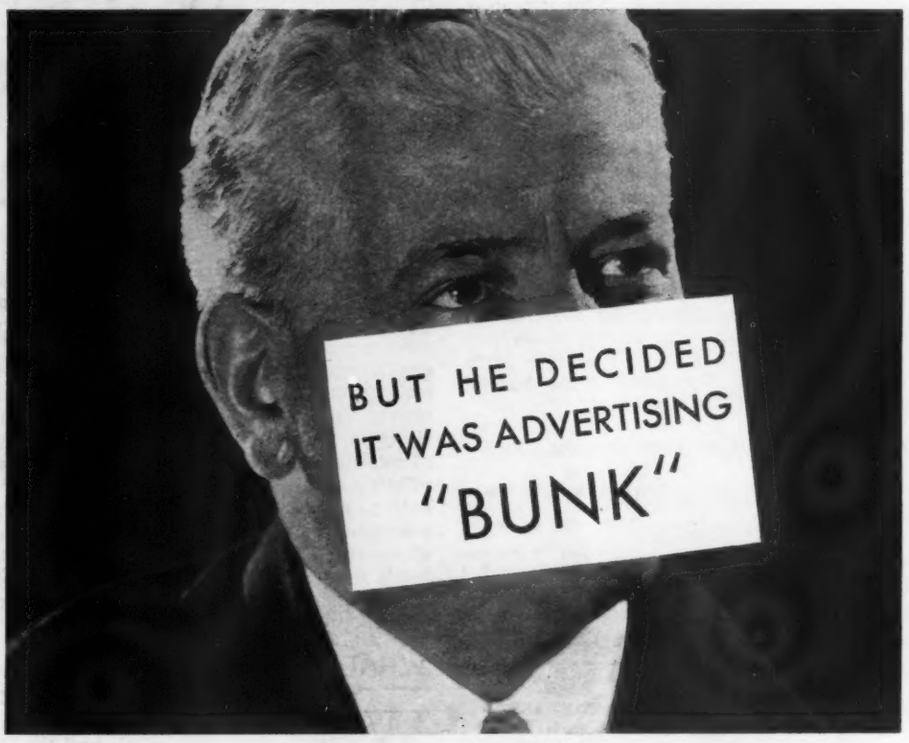
This paragraph is of interest to textile manufacturers because the farmers are the great consumers of the nation's textile products and their economic condition and purchasing power is very determinative in future consumption.

At the present time, while the National Congress is trying to aid the farmer, and because it has made so many efforts to aid him, it may be of interest to surmise that this rebellion is fostered by an ignorant supposition that the Government can eventually relieve the farmer and because it does not, he rebels in protest.

It is also of interest to note in connection with this rebellion, and in connection with proposed legislation that of all farm products, the lowest return for 1932, compared with 1929, is found in the three commodities which the government attempted to aid by price stabilization—grain, cotton and wool—according to figures compiled by the Bureau of Agricultural Economics.

The value of grain for 1932 is but 30 per cent of the 1929 total; for cotton, 28 per cent; and for wool, the other commodity pegged for the farmer, 30 per cent. Sugar, untouched by the Farm Board, had a value of 79 per cent of the 1929 income.

THIS AGENT NEARLY SAVED $8,500



"Save 60% on roll costs," the advertisement claimed. He estimated that would amount to around $8,500 in his mill. "Absurd!" he concluded. "Another advertising 'fish story'!"

...So here's a new kind of advertising:

Instead of telling you what *we* think of Armstrong's Seamless Cork Cots, we're going to ask you to tell us. We want your honest opinion, based on facts.

You see, scores of mills have reported savings averaging over 60% with Armstrong's Seamless Cork Cots. Those are their own figures, mind you . . . not ours. And they claim a yarn equal or better in strength and evenness . . . improved spinning conditions . . . decreased clearer waste . . . less trouble from hard ends. Since 1927, over six million spindles have been put on Armstrong's Seamless Cork Cots—and the number is increasing as fast as replacements permit.

Wouldn't you like to know what they will do in *your* mill? The only way to find out is to make a production test *yourself* and watch the results carefully. Check your costs, your yarn quality, spinning conditions. Then let us know what *you* find out.

First send for your copy of "The Facts About Armstrong's Seamless Cork Cots." You'll find it helpful when you make this test.

Armstrong's (A) Product

Armstrong's
SEAMLESS CORK COTS

For Spinning and Card Room Rolls

Armstrong Cork & Insulation Co.
923 Arch Street, Lancaster, Penna.

I would like to know how I can prove these savings in my mill. Please send me without obligation your book, "The Facts About Armstrong's Seamless Cork Cots."

Name.....

Firm Name.....

City..... State.....

COMMENT ON THE COTTON MARKET

New Orleans, February 15th, 1933.

As the season for planting for another cotton crop approaches more interest seems to be developing in the cotton contract market, which, during the past month, held comparatively steady, for while the staple was under pressure at times, its recuperative power was in evidence when trade buying or short covering asserted their influence, which caused values to bulge when support was needed. Of late, however, due to the one-week bank holiday in Michigan, and free offerings, the market experienced a sharp decline, but much of the loss was recovered meanwhile owing to buying, attracted by the low price.

During the period under review the market had to contend with much hedge selling, smaller spot sales in the South, weakness of the stock market and the decline in wheat, although there was talk of possible inflation, and the different proposals in Washington in the interest of the cotton industry received consideration.

There was something of a revival recently in the demand for cotton goods, but the market for the finished product has become quieter again, and of late there was some talk of the probability of some curtailment by mills in the Charlotte district, also in Manchester, if the demand does not improve.

WORLD'S CONSUMPTION OF LINT COTTON.

AMERICAN— Estimated— Bales—	This season	Last season
For December, about	1,128,000	1,021,000
Aug. 1st to Dec. 31st, about	5,648,000	5,039,000
ALL KINDS —		
For December, about	2,042,000	1,931,000
Aug. 1st to Dec. 31st, about	9,900,000	9,680,000

ESTIMATE OF WORLD'S SUPPLY OF COTTON DECEMBER 31.

Lint— Bales—	This season	Last season
American, about	20,096,000	20,581,000
Of other kinds, about	10,020,000	10,038,000
All growths, about	30,116,000	30,619,000

BRITISH BOARD OF TRADE REPORT FOR JANUARY.

Year—	1933	1932	1931
Exports of yarn, pounds	11,000,000	16,000,000	11,000 000
Exports of cloth, yards	197,000,000	180,000 000	156,000,000

CENSUS JANUARY DOMESTIC CONSUMPTION REPORT.

United States— Bales—	This season	Last season
Consumption of lint, January	471,202	434,726
Consumption of linters, January	48,412	51,635
Consumption including linters, January	519,614	486,361
Consumption of lint, six months	2,811,486	2,625,743
Consumption of linters, six months	311,895	339,904
Consumption including linters, six months	3,123,381	2,965,647
Mill stocks, January 31st	1,495,527	1,638,136
Stocks in public storage and warehouses, January 31st	10,020,760	10,039,427
Stocks in mills, public storage and warehouses, January 31st	11,516,287	11,677,563
Active spindles during January	23,766,968	25,004 760
Active spindles during December	23,775 136	24,688,694

EXPORTS FROM THE UNITED STATES, August 1st to Feb. 10th.

To— Bales—	This season	Last season
Great Britain	918.000	767.000
Continent	2.924 000	2.155.000
Orient	1,372.000	2,398.000
Canada	106,000	112,000
Total to February 10th	5,320,000	5,432,000

SPINNERS' TAKINGS OF AMERICAN, August 1st to Feb. 10th.

By— Bales—	This season	Last season
North and Canada	766.000	954.000
South	2,799 000	2,967,000
Europe, exclusive of Canada and Orient	3,108.000	2,691.000
Orient	1,393.000	1,879.000
Total to February 10th	8,066.000	8,491.000

WORLD'S VISIBLE SUPPLY OF COTTON. February 10th.

Bales—	This year	Last year
American	10,022 000	10,020.000
Other kinds	1.798.000	1,824.000
All kinds	11,820.000	11,844.000
Middling in New Orleans today	6.03	6.56

Exports from the United States and world spinners takings of American have been rather disappointing the past month, both now running less than to even date last season, and the outlook for the near future, as to exports, remains discouraging. However, inasmuch as the world's consumption of American to the close of December was about 600,000 bales larger than for corresponding period last season, it is evident that spinners of the Orient have been drawing largely on their reserves, and it is probable that the stock of American in Japan today is much smaller than it was one year ago.

Within a few weeks hence there will be a new administration in Washington when numerous important matters will be up for discussion and action, such as war debts, balancing the budget, the tariff, the silver question, etc., and unless something is done in the interest of the cotton farmer during the remainder of the present short session of Congress, this problem may be up for further consideration after March 4th, but, in which event it would likely be too late to affect very much this year's acreage to be planted to cotton in the South.

TOTAL AVERAGE RAINFALL IN TEXAS, IN INCHES.

Year—	1933	1932	1931	1930	Normal
January	1.82	4.71	2.81	1.81	1.82
Nov. to Jan. inclusive	6.09	10.87	7.46	6.60	6.33

As to the outlook for preparations for the next crop, present conditions seem to be favorable since there is reported a good season in the ground, probably a larger use of fertilizer, a surplus of cheap farm labor and prospects for probably less damage by the boll weevil this year. As to the acreage, whether it will be smaller or larger than last year's, remains problematical. Many reports from the interior, however, are to the effect that there may be little change, compared with last year, perhaps an increase, especially in the Southwest owing, it is claimed, that growing of cotton would be more profitable than growing grain under existing conditions. However, the unfavorable financial situation, future weather conditions, and the possibility of something being done in Washington at the present session of congress, now drawing to a close, in the interest of a much reduced acreage and higher prices, might alter prevailing ideas as to what this year's acreage may be.

WHAT THE SOUTHERN MILLS ARE DOING . .

W. C. Bobo, formerly general manager of the Judson Mills, Greenville, S. C., and the Gossett Mills, Anderson, S. C., has acquired the building formerly occupied by the Yarns Corp. of America, Spartanburg, S. C., and will manufacture fine rayon and silk woven goods.

Adams Millis Corp., High Point, N. C., has installed a new cone winding equipment for its new silk throwing plant; Universal winders were installed, for winding cones for full-fashioned machines.

Globe Cotton Mills, Augusta, Ga., have started on a new line of colored goods, a new suiting material. The plant is using the facilities of the designing and engineering and cost departments of the Sibley Mfg. Co. and Enterprise Mfg. Co., in the modernization of its equipment and methods.

It is reported that the Beacon Manufacturing Co. is moving all of its equipment from New Bedford, Mass., to augment its plant at Swannanoa, N. C.

Cotton Mill Products Co., Mobile, Ala., recently installed a Hermas shearing machine, purchased through the Carolina Specialty Company, Charlotte, N. C. The J. W. Sanders Cotton Mills, Starkville, Miss., made a similar installation.

Shelby Cotton Mills, Shelby, N. C., have purchased equipment for a steam power plant, including a 1500-kw turbine. George W. Hill, of Spartanburg, S. C., is the engineer.

A large addition, three-story of brick, steel and concrete, is being made to the Pannill Knitting Co., Martinsville, Va. The addition will house equipment recently purchased from the Queen City Knitting Mill, Elmira, N. Y.

Spread your sails for 1933 weather

Let's admit that present conditions are normal for 1933 and set our course accordingly. To make headway with the lighter trade winds of today, mills must spread extra canvas. Rig your ship with modern, cost-reducing methods and make progress NOW.

Modernized Spinning Produces Profit

Spinning room modernization is one of the biggest steps toward 1933 profits. A well known Southern mill received such outstanding results from 40 frames of Saco-Lowell-Roth Spinning that they promptly ordered us to bring 60,000 more of their spindles up to 1933 standards.

13s to 41s with single roving

They now are able to spin their entire range, from 13s to 41s, from single roving. They eliminate an entire roving operation and require fewer slubber and intermediate spindles because they run coarser rovings. As a result their savings per pound of yarn are definite and substantial.

Maximum Draft—low end breakage

With extreme drafts, such as 15.29 on 13s, 15/16" cotton; and 20.00 on 41s, 1-1/16" cotton, they are getting improved quality. Their ends down on 41s, for example, average only 9.72 per 1000 spindle hours. More than 3,000,000 spindles of S-L-Roth Spinning have been installed. Their performance sets the 1933 standard. When our engineer next calls, request him to explain how an installation would quickly pay for itself in your mill.

SACO-LOWELL-ROTH

Long Draft Spinning

SACO-LOWELL SHOPS

147 MILK STREET, BOSTON, MASSACHUSETTS

CHARLOTTE, N. C. SPARTANBURG, S. C.

ATLANTA, GA.

NEW TEXTILE EQUIPMENT AND PUBLICATIONS . . .

New Johnson Cotton System Warp Sizer for Synthetic and Spun Silk Yarns.

An interesting development in the sizing of rayon warps has been the application of the Johnson improved warp sizer, manufactured by Charles B. Johnson, Piercy & Holsman Sts., Paterson, N. J., to the cotton system of processing through the development of a new end which is quite similar to the front end of the cotton system type slasher. In all other respects the machine is the same type sizer as previously, except that it has been designed to handle acetates and other rayon yarns as well as spun silk on the cotton system with section beam warps. For six months the machine has been in successful operation at a leading southern mill.

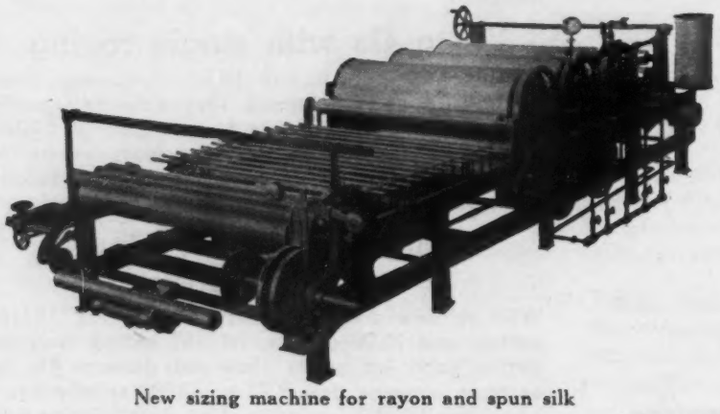
Two of the most important features are the absolute control of strength and heat applied to the yarn, it is explained. The quetsch in the Johnson machine is so designed that it gently draws the warp from the various section beams with a dry nip in such a manner that equal tension is applied on all of the ends. The warp is first fed to a point where the solution is applied, then, by means of a variable tension control, to the drying cylinders. The take-up has been especially designed to receive all types and widths of loom beams, and is ball bearing throughout, allowing for a very sensitive "touch" in beaming, making it adaptable to warps of any number of ends and of any denier.

A unique device has been developed for securing tension between the draw rolls and drying cylinders. From the draw rolls the drying cylinders are driven through machine cut bevel gears, the shaft of which is mounted on Fafnir self-locking ball bearings. The necessary tension is secured merely by changing a gear, making it unnecessary to build up the draw rolls to suit the required tension. When desired, specially designed ball bearing section beam creels may be supplied.

An electric pre-determining counter is furnished as standard equipment. This can be set for the required yardage; when this yardage is reached, the counter makes or breaks a contact in an electric contactor which is part of the counter. The electric circuit thus set up may be used to light a lamp, ring a bell to signal the operator, or actually stop the machine.

It is pointed out that with this machine may be sized warps for broad goods, extra wide goods, bedspreads and tapestries, also selvages and other narrow fabrics; the manufacturers state that the machine is especially adaptable for sizing acetates, for which low temperatures are necessary. In this machine, it is pointed out, both sides of the warp are presented to the heating surfaces of the cylinder.

It is explained that all improvements on the new machine may be applied to old models; many users having converted their former 3-cylinder machines to 5-cylinder models by the addition of part of the framework and new cylinders.



New sizing machine for rayon and spun silk

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Suggestions on Silk and Rayon Throwing.

Laurel Soap Mfg. Co., Inc., Tioga, Thompson and Almon Sts., Philadelphia, Pa., have issued a small folder presenting suggestions for the modern silk and rayon throwster, making recommendations in connection with silk-soaking, degumming, dyeing, sizing, finishing, etc.

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Literature on Baling Presses.

Logemann Brothers Co., Milwaukee, Wis., have issued two new bulletins, Nos. 182 and 183, describing Logemann balers for cotton, cotton waste, and yarn, giving specifications of each machine and adequate illustrations.

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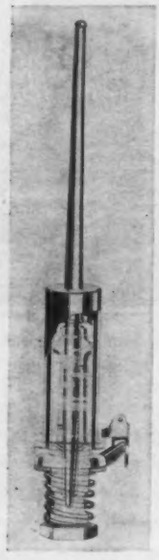
Improved "Ball Top" Spindle.

Atwood Machine Company, Stonington, Conn., have announced an improvement in the "Ball Top" spindle, in which a new patented step provides a maximum reserve supply of oil, it is explained. The company points out that with the improvement "it would require many months of absolute neglect before the spindles could run dry. The 'Ball Top' blade combines strength, hardness, toughness and elasticity; it runs true and stay sstraight under the most severe conditions."



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Formadine Black.

John Campbell & Co., 75 Hudson Street, New York City, have announced a new straight direct black, Formadine Black, which, it is pointed out, stands formaldehyde after-treatment. It is dyed in the usual way, the company explains, the same as any direct black; at the expiration of the dyeing it is given an after-treatment in a new bath with formaldehyde, which increases the strength of the black and produces the correct shade. "It also increases the washing and light fastness properties and produces a very deep and intense black. It is recommended for dyeing cotton skeins, hosiery, rayon, also piece goods. It discharges well, and is also used for a ground for vat prints. It gives good fastness to washing in a boiling soap bath, and leaves Celanese unstained."

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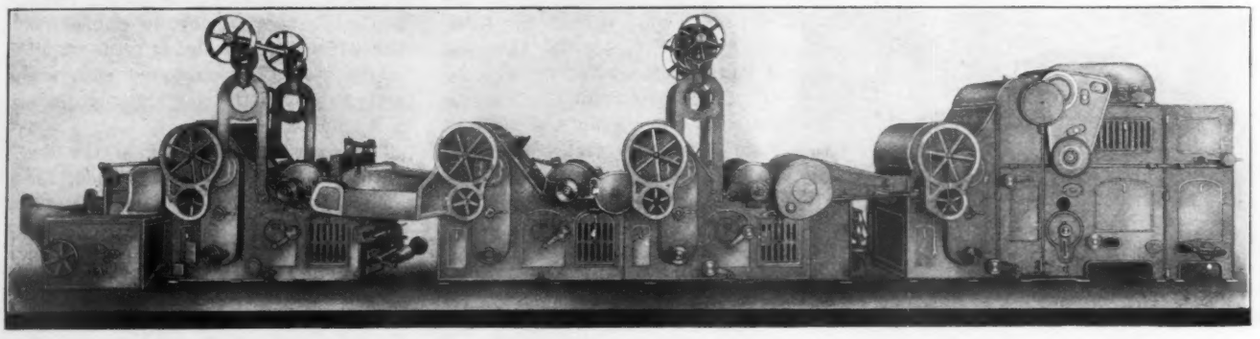
N. C. State Textile School Installs New Oiling System.

An oiling system which vaporizes the oil and forces it into the beater box just below the feed roll by means of a double acting pump, has been installed on a finisher picker in the textile school of North Carolina State College, Raleigh, N. C., by The Texas Company.

Worth looking into!



A southern mill recently installed our A-1 One Process Picking. The first report we received was

....."only 4 laps lost out of 700"

• • • •

....99.43% PRODUCTION EFFICIENCY

H & B AMERICAN MACHINE CO.

PAWTUCKET, RHODE ISLAND

BOSTON OFFICE
161 Devonshire Street

ATLANTA OFFICE
815 The Citizens & Southern Nat. Bank Bldg.

COTTON PREPARATORY AND SPINNING MACHINERY

The oil tank is located underneath the apron of the finisher picker, thus making a compact installation.

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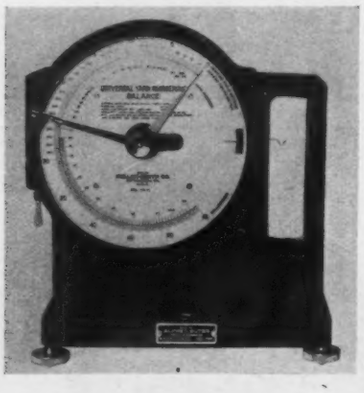
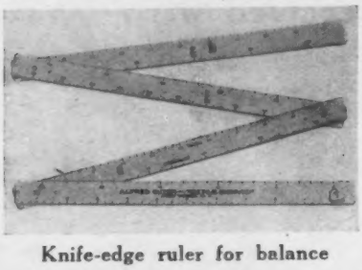
Yarn Numbering Balance.

Alfred Suter, 200 Fifth Ave., New York City, has announced a new Universal Yarn Numbering Balance, manufactured by the Roller Smith Company of Bethlehem, Pa. Mr. Suter is the exclusive distributor in the United States of Roller Smith precision balances for textile applications.

The Universal Yarn Numbering Balance has been developed to meet the need for a balance of accuracy and speed for determining the yarn numbers of any kind of yarns from short lengths. The machine is shown herewith. To operate the balance: with the beam locked, the specimen is hung on the hook in the weighing chamber, the weighing chamber closed and the beam unlocked. The index lever is rotated until the beam is in balance and the index pointer then indicates the correct yarn number, denier or milligrams.



Yarn numbering balance



Knife-edge ruler for balance

A ruler with knife edge, also shown, is provided with the balance. In preparing the specimen, the ruler is opened up and laid flat on a table. One end of the yarn is held against the proper mark with one hand, the yarn pulled through the cutting tool, with the other hand, and stretched until crimps and kinks are straightened out. Then the yarn is brought against the cutting edge to cut it off, and twisted into a convenient knot for hanging on the hook in the weighing chamber. All kinds of yarn may be measured and weighed on the device, instructions being given indicating the lengths of each type of yarn to be used in making the determinations.

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Booklet on Highflex Belt.

A new eight-page supplement to its mechanical goods catalog on its "Highflex Transmission Belt" has just been issued by The B. F. Goodrich Rubber Co., Akron, Ohio. The supplement discusses function and varied operating conditions of transmission belting, some of the complexities involved in making rubber belts, discussion of rubber compounds and construction used in Highflex and flexibility.

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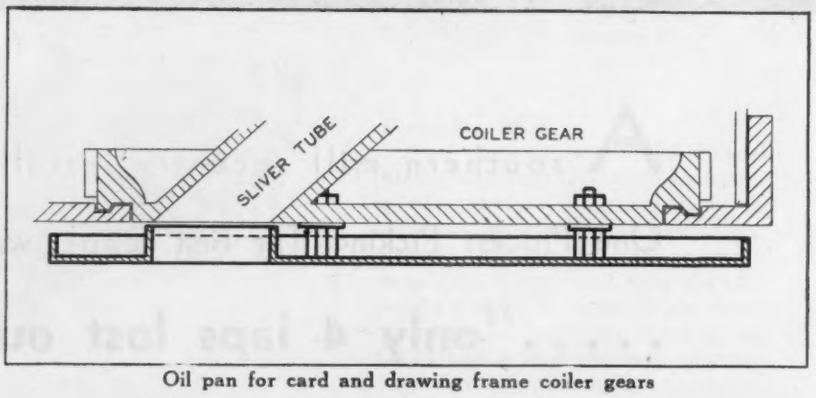
Oil Pan for Coiler Gear on Cards and Drawing Frames.

An oil pan for application to the coiler gear on cards and drawing frames, has been devised and invented by J. E. Gunter, overseer of carding, Anderson Cotton Mills, Anderson, S. C. The object of the oil pan is to catch waste oil from the coiler gear and prevent this from getting on the sliver being placed in the can; and at the same time providing a means of operating the automatic knock-off lever for stopping the frame, as before.

The construction and application of the device will be understood by a study of the accompanying sketch, which shows it in place on a coiler gear. The invention consists of a pan, made two inches larger in diameter than the coiler gear, and fastened in an inverted position to the bottom of the coiler gear. It is fastened to the coiler gear by three bolts, the shoulders of the bolts being ⅛-inch higher than the sides of the pan, to give ample play for the automatic knock-off lever to operate when the can is full of sliver. When bolted to the coiler gear, the pan forms a part of the gear and revolves with it. A sliver tube hole is placed in the pan in line with the sliver tube of the revolving coiler gear, so that the sliver may pass into the can as usual. The bottom of the oil pan, it is explained, serves the same purpose as the bottom of the coiler gear: when the can is filled it pushes up the oil pan and coiler gear, tripping the automatic knock-off lever. The pan catches waste oil coming from the coiler gear. Mr. Gunter states that this pan has been installed on all drawing frames in the Anderson Cotton Mills for about eight months, and has proven very satisfactory.



Oil pan for card and drawing frame coiler gears

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New Equipment at Georgia Tech.

C. A. Jones, director of the A. French Textile School, Georgia School of Technology, Atlanta, Ga., has advised of the following new equipment and changes in the department:

A sixteen-spindle W. D. Huse bottle bobbin winder has recently been installed, for converting rayon and fine cotton yarns into knitting and weaving forms. One complete oil spraying unit has been installed in the picker room by The Texas Company, in connection with which tests are being made on oil treated stocks, as compared with untreated through the various operations to the finished fabric.

The combing equipment in the department has been re-conditioned, for the processing of long staple cottons. This combing unit consists of one Whitin sliver lap machine, one Whitin ribbon lap machine and one Whitin comber.

New Temperature Regulator Data.

Atlas Valve Co., 282 South St., Newark, N. J., have announced the "Victor" temperature regulator data and price book pertaining to their self-contained vapor types of temperature regulators for liquids. Four types of regulators are featured. Considerable space is devoted to illustrations of actual applications to fuel oil control, desuperheating, and controlling the temperature of liquids under various conditions.

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New Morse Distributors.

Crandall Engineering Co., Birmingham, Ala., have been appointed agents for the Morse silent chains by Morse Chain Co., and are now carrying a complete stock for immediate shipment.

Have you tested these amazing New Compounds in your Mill?

ALIPHATIC ESTER SULPHATE AND GLYCERYL SULPHATES

Improve every operation THROWING - BLEACHING DYEING - FINISHING

THE NEW SERIES!

ALIPHATIC ESTER SULPHATE

Highly effective as a Penetrating and Wetting out agent in the Dyebath: For Kierboil, Finishing, Throwsting, Printing and Vat Dyes. So stable, will not break under ANY conditions of use. Resists boiling in organic acids and salts; unaffected by hard or calcerous water. Carries dye into tiniest fibre and produces clear, even-dyed fabric in record time. Effects important savings in amount of dyestuff needed.

OLEO GLYCERYL SULPHATE

Used for Softening, Finishing and Lubricating Silks, Rayon or Mixed Goods in all processes. For Dyeing and Finishing. For Kierboiling; for boiling off Hosiery; for Silk Throwing; as a base for emulsions. In boiling off and kierboiling, will not break under hard or calcerous water. Prevents oil spots. Boil off is more penetrating and cleansing.

STEARO GLYCERYL SULPHATE

Recommended for Softening and Finishing of Cotton, Rayon, Silks, etc. Produces softer feel. Gives a PENETRATED finish, not merely surface. Stable with organic salts and hard water; no danger of breaking. Positively no odor in storage. Beautiful effects obtained.

PALMITO GLYCERYL SULPHATE

Very effective in scouring Wool and Boiling off Cotton and Rayon. Deeply penetrating, removing every trace of Emulsions and oils. Wool becomes fluffier. Even shades assured in dyebath.

OLD-METHOD sulphonated compounds for processing and finishing are rapidly being replaced by the revolutionary compounds developed by the ONYX laboratories . . . ALIPHATIC ESTER SULPHATE and GLYCERYL SULPHATES.

NEW and BETTER . . . in every way!

These are new compounds . . . of new formulae . . . setting new standards of results. Whether you want more economical production—speedier production—finer fabrics—better prices—more profits . . . this new series offers the answer.

Priced within the reach of every Mill!

These compounds were not marketed until ONYX chemists produced them *at prices within reach of every mill.* The fair price and many advantages—plus the fact that much smaller quantities of compound are needed—give you a powerful weapon to meet any competition on a quality basis.

Send Coupon for details and sample.

An interesting booklet describing these new compounds will be sent with a suitable sample on request. State operation and fabric. Use coupon, for convenience, if possible.

ONYX OIL & CHEMICAL CO.
JERSEY CITY, N. J.

Specialists on Finishing Materials

Midwestern Repr. MAHER COLOR & CHEMICAL CO., Inc., Chicago

Mail this coupon

ONYX OIL & CHEMICAL CO.,
15 Exchange Place, Jersey City, N. J.

Gentlemen:
Send sample and directions for_____

_____

_____

Also booklet and prices. No obligation.

C-3

Firm Name _____

Individual _____

Address _____

*City*_____ *State*_____

207

TIMELY NEWS ITEMS WITH A TEXTILE SLANT . . . .

Southeastern Cottons, Inc., Succeeds Hunter Company.

Southeastern Cottons, Inc., the concern organized to acquire the business and assets of the former Hunter Manufacturing & Commission Company, has started operations. The Hunter company, generally recognized as the largest textile goods selling organization in the country, has been liquidated.

Howard E. Coffin is chairman of the board of the new concern, Southeastern Cottons, Inc. Mr. Coffin, a graduate of the University of Michigan, is recognized as one of the country's outstanding industrial leaders. He became chief engineer of the Olds Motor Works in 1905; vice-president and chief engineer of Chalmers Motor Company in

Mr. Coffin

Mr. Payne

1907; vice-president and consulting engineer, Hudson Motor Company, in 1910, which position he held until 1928. He was president of the American Society of Automotive Engineers in 1910, and founded S. A. E. standardization activities. He was an organizer and first president, 1922-1923, of the National Aeronautic Association; and chairman of the organization committee of National Air Transport, Inc., in 1925, and served as president until 1928, and chairman of the board until 1930. He developed the Sea Island development on the coast of Georgia, is now chairman of the board of the Sea Island Company of Georgia; a director of North American Aviation, Inc., owners of Eastern Air Transport, Sperry gyroscope, etc., and a director of the Industrial Bank of Detroit.

Frederick Huff Payne is president of Southeastern Cottons, Inc. Colonel Payne has been assistant secretary of war since May 1930. He organized the Greenfield Tap and Die Corporation in April 1922 and in 1924 became president He is a former president of the American Hardware Manufacturers Association; formerly vice-president American Supply and Machinery Dealers Association; formerly president of Associated Industries of Massachusetts.

The executive committee of Southeastern Cottons, Inc., includes the following: James A. Chapman and J. C. Evins, Spartanburg, S. C.; Donald Comer, Birmingham, Ala.; A. F. McKissick, Greenville, S. C.; Alfred Moore, Wellford, S. C.; George W. Mountcastle, Lexington, N. C.; John W. Porter, Rockingham, N. C.; R. E. Reeves, Summit, N. J.; James C. Self, Greenwood, S. C.; Elliott Springs, Lancaster, S. C.; and George M. Wright, Great Falls, S. C.

Southeastern Cottons, Inc., is controlled by the member mills. "Through membership of each mill on the board of directors," Mr. Coffin stated, "the company will have the benefit of the mills' point of view, the experience as well as the counsel of a group of the most successful manufacturers in the textile field." Products of the mills heretofore handled by the Hunter company are merchandised through the new company.

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Linder Opens Warehouse Stock in Greenville.

Linder & Company, Inc., 296 Beacon Street, Boston, Mass., have announced that their Purasol gum and tallow is now stored at the Textile Warehouse Co., Greenville, S. C. Clarence H. Ochs, P. O. Box 654, Greenville, S. C., is manager of the Greenville office.

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E. R. Schwarz Made Fellow in British Textile Institute.

Professor Edward R. Schwarz, of the department of mechanical engineering at the Massachusetts Institute of Technology, has been elected to a fellowship in the British Textile Institute. This honor comes to Professor Schwarz in recognition of his notable contributions in the field of textile technology and research.

In granting this distinguished fellowship, the British Institute took cognizance not only of Professor Schwarz's independent studies, but also of his standing as a graduate of Technology and a member of its faculty. Recognition was also made of the numerous papers contributed by him to textile publications, and specifically, of an article recently accepted by the Journal of the Textile Institute on the micro-analysis of yarn structure.

A charter member of the United States Institute for Textile Research under the presidency of the late Dr. Samuel W. Stratton, Professor Schwarz is at present chairman of the organization's committee on bibliography and abstracts, as well as chairman of its board of editors. In the latter capacity, he supervised preparation of "Textile Research—A Survey of Progress", the first volume published by the Technology Press.

He is also director of editorial policies for "Textile Research", monthly publication of the Institute for Textile Research, and a member of the Advisory Committee of the Textile Foundation, of which Dr. Karl T. Compton, president of Technology, is chairman.

Under Professor Schwarz's personal direction, Technology has developed since 1925 one of the best equipped textile microscopy laboratories in this country, and possibly in the world. This laboratory was initially devoted to acquiring proper equipment and technique for textile study, but emphasis is now being placed on applying these to both fundamental and practical research.

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New Type Cotton Bag for Shipping Onions.

A new type of cotton mesh bag especially constructed for the shipment of onions has been placed on the market and is being given initial use by a score of wholesale shippers and distributors in Michigan and New York. Large orders already placed have been for a 50-pound size but, according to the New Uses Section of the Cotton-Textile Institute, 10-pound and 25-pound sizes are also being developed. The 10-pound size is designed for the packing of onions in a standard retail sales unit. In addition to enhancing the attractive appearance of the packaged onions, it will appeal to the housewife because of the re-uses to which it can be applied, such as a dish cloth or mop pad.

Other large markets for these new cotton bags used as a reinforcing cover for sugar, flour and similar items put up in cellophane, are being explored.

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Sending It in a Hurry.

Recently the airplane was used for rushing a shipment of endless cotton printer's blanket to the Imperial Printing and Finishing Co., Providence, R. I., by the Hurley-Johnson Corp., of New York City. The blanket left the New York office of the Hurley-Johnson Corporation at 1 p.m., was shipped out of Newark by airplane to the state airport in Hillsgrove, and was delivered to the Imperial plant at 4 p.m.

This UNION SPECIAL Overedging *Outwears the shirt*

FOR eight months, machinists drilling on castings under the splatter of oil and grease daily wore three blue chambray work shirts that had the bottoms finished with overedging made by Union Special *Style 39100 R.*

Thirty-four times these shirts went to the laundry to be scoured of grime until at last it became impractical to darn and patch them any more. Yet, at the end the overedging on the tails still remained unfrayed and unbroken. This offers conclusive proof that this new finish will withstand the hardest kind of wear.

P.S. Overedging saves ½ inch material per shirt!

The high speed—smoothness—ease of operation—that characterize the new Union Special *Thirty-Nine-Thousand* Series overedgers results in tremendous production on this operation. The finish produced is unusually uniform and attractive. Write for samples and information.

UNION SPECIAL MACHINE CO.

400 North Franklin Street Chicago, Illinois

Official Emblem for National Cotton Week.

Cotton's indispensability is the theme of the striking new poster designed by the Cotton-Textile Institute as the official emblem of the 1933 National Cotton Week, to be observed this year during the week of May 15 to 20. The slogan selected for this year's poster is "Everybody Uses Cotton." This is visualized by a parade of figures that are not only representative of the "man in the street", but also the American woman and the junior American, thus symbolizing "everybody". The slogan, according to the Institute, is not merely a figure of speech because cotton in some form enters into the personal attire of everyone and has nearly a thousand uses in industry and in the home.

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Denman Appoints Distributor.

The Denman Tire & Rubber Co., Warren, Ohio, have appointed Fisher Textile Purchasing Co., 269 South 59th St., Philadelphia, Pa., as agents for New Jersey, Pennsylvania, and Southeastern New York for their rubber pickers, bumpers, and other loom specialties.

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New Officers for Cotton-Textile Merchants.

At the annual meeting of the Association of Cotton Textile Merchants of New York, Magruder Dent was elected president for the ensuing year; Frederic A. Williams, vice-president; Henry C. Taylor, treasurer; and W. Ray Bell, secretary. The following were elected directors of the Association to serve until the annual meeting in 1936, succeeding Messrs. Brewster, Curtis, Gallon and Milliken, whose terms expired: Harry L. Bailey, of Wellington Sears Company; John C. Hughes, Jr., of McCampbell & Co., Inc.; Robert T. Stevens, of J. P. Stevens & Co., Inc.; and Frederic A. Williams, of Cannon Mills, Inc. Harry L. Bailey, Charles D. W. Halsey and George P. Ray were appointed by the directors to serve with the president and vice-president as an executive committee.

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Pardue Joins Quaker Chemical Products Corp.

W. A. Pardue, of High Point, N. C., has joined the technical sales force of the Quaker Chemical Products Corporation, of Conshohocken, Pa. He is district manager for the company in the States of North and South Carolina, with headquarters at 1202 North Main St., High Point. Mr. Pardue is a graduate of Clemson and North Carolina State College, where he studied textile chemistry. For the past six years he has been connected with several of the large cotton bleaching and finishing plants in the South. In his new connection he will specialize in the application of a new line of water white soluble oils, advanced cotton softeners and a new development for throwing rayon crepe.

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Cotton Textile Merchants Discontinue Monthly Statistical Statements.

The Association of Cotton Textile Merchants of New York has announced with regret that the customary monthly statements relating to production, billings and sales of carded cotton cloths will be suspended until further notice. No statement will be issued for the month of January.

This action is made advisable because of the withdrawal from current participation in the statistical reports, of several important mills, whose records of activity have been included in previous summaries. These defections, in the opinion of the officers and directors of the Association, have impaired the comparability of the monthly reports and their value as a reliable presentation of current facts. Rather than undertake makeshifts which might be misleading, it has been considered preferable to resume these monthly statements only when the previous comparability and adequateness can be restored.

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Plans for Knitting Show in Philadelphia.

A large percentage of the space occupied at the 1932 Knitting Arts Exhibition in Philadelphia has been contracted for by companies which will exhibit at the 1933 Exhibition, to be held April 24th to 28th inclusive at the Commercial Museum, Philadelphia. Options have been taken for a considerable quantity of additional space, and it is predicted that the 1933 exhibition will exceed in size that held last year.

The exhibit committee of the National Association of Hosiery and Underwear Manufacturers, under whose auspices the Exhibition is held annually, includes. I. C. Eberly, Oakbrook Hosiery Mills, Reading, Pa.; J. P. Holt, Aberfoyle Manufacturing Co., Philadelphia, Pa.; H. S. Horrocks, H. Brinton Co., Philadelphia; Walter L. Toy, Scott & Williams, Inc., New York; and Kenneth Howie, Wildman Manufacturing Co., Norristown, Pa.

Use of the new dining room in the auditorium adjoining the museum as a restaurant throughout the exhibition is planned, to provide a considerable improvement over the restaurant facilities available in the past.

Following the untimely death of Chester I. Campbell, who has been manager of the Exhibition during recent years, it was announced that plans would be carried out and the exhibition managed under the direction of Messrs. Rau and Gardner who have long been members of Mr. Campbell's executive staff.

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New Process Makes Cotton Fabrics Permanently Fireproof.

Development of a new process for fireproofing cotton fabric has opened another potentially large market for cotton, according to the Fireproof Fabrics Sales Corporation, 2846 Emerald St., Philadelphia, Pa. This process is said to offer important economies to uses of non-combustible fabrics for purposes now served by heavier and more expensive structural material.

In actual service under exacting out-of-door conditions, cotton canvas, treated by the new process, has proved its immunity from fire and its permanent retention of fireproof qualities, it is stated. The company continues: "Exposure to rain and weather does not impair its fire resistance. Awnings and canopies represent one of the major uses. A large apartment house in New York suffered repeated awning fires from carelessly discarded cigarettes and matches, until last summer when this new fireproofed fabric was substituted. These new awnings came through the summer unscathed and when removed for winter storage, were undamaged by the many stumps and matches that had been tossed on them.

"The process is applicable to all kinds of cotton fabrics, from the lightest airplane cloth to the heaviest duck.

"Since the use of cotton fabric for roofing purposes is rapidly increasing, the fireproofed material offers new possibilities in that direction. It is considered especially suitable for roofing on farm and county fair buildings, and otherwise.

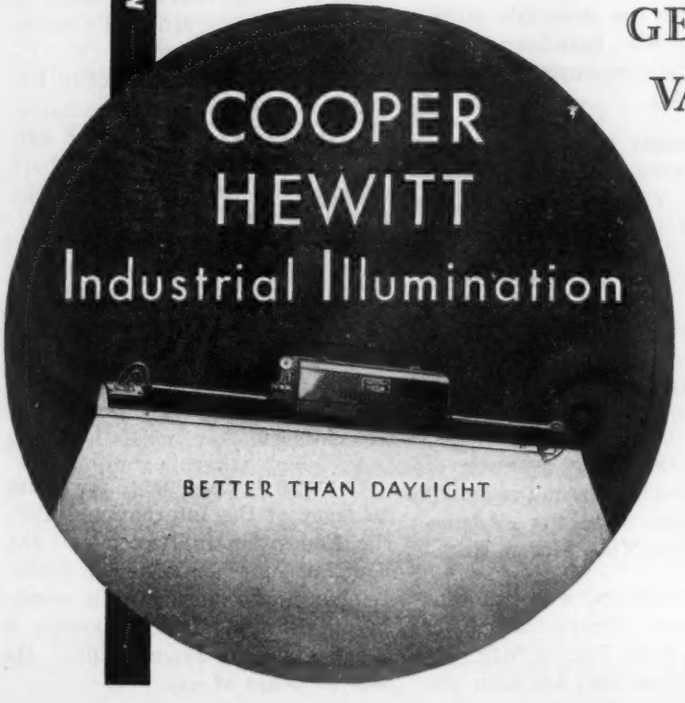
MODERN INDUSTRY DEMANDS COOPER HEWITT LIGHTING

Are you substituting increased seconds for PROPER ILLUMINATION?

Once you have installed Cooper Hewitt mercury-vapor light for any manufacturing operation—its actual money value in terms of increased production, reduced seconds and other important items is simply and easily determined. Just try, for a time, to get along without it—or even with less than what has been found adequate!

For example, we could mention a plant (name confidentially given on request) where 97 Cooper Hewitt lamps gave just the proper illumination necessary for weaving high-grade rayon crepe, etc. Ordinarily these lamps burn day and night though the plant is of monitor daylight construction. But in a recent effort to economize, the lights were turned out in one section of the plant whenever daylight seemed adequate . . . And, *in this section, the percentage of seconds rose from their usual average of 4% to 7%!*

Again and again, in industrial plants all over the country, Cooper Hewitt mercury-vapor illumination has proved its actual dividend paying value. You cannot afford *not* to give Cooper Hewitt light at least a trial—say a 30-day period with a few lamps. General Electric Vapor Lamp Company, 853 Adams Street, Hoboken, N. J.



GENERAL ELECTRIC VAPOR LAMP COMPANY

549 Copr. 1933, General Electric Vapor Lamp Co.

Cooper Hewitt light eliminates dependence on window illumination and lets you utilize every square foot of your middle-floor areas at any hour of the twenty-four. It enables you to move from other buildings your best equipment, if need be, and centralize it in one. Thus, even with a six-hour day, you can give employment to two or three shifts, with the same equipment and a correspondingly lower overhead and maintenance cost. It does away with the uncertainties of weather or season.

PERSONAL NOTES
about Men You Know

THOMAS H. MCKINNEY has been elected president of the Standard-Coosa-Thatcher Company, Chattanooga, Tenn. He has been vice-president and general manager. J. S. VERLENDEN, formerly president, was made chairman of the board, and retains headquarters in Philadelphia. R. J. MATHEWSON, vice-president in charge of sales, who has been located in the Philadelphia office, has transferred his headquarters to the executive offices in Chattanooga. These changes were made at the annual stockholders' and directors' meeting on January 24th. R. C. THATCHER is treasurer; S. M. GAMBLE assistant treasurer; and F. R. HARRIS secretary.

Mr. McKinney

Mr. McKinney, who becomes president of the company, started in the textile business in 1919. After five years in the textile yarn business, he organized the National Yarn & Processing Company, of which he was president from 1924 to 1929, when it was merged with the Standard-Coosa-Thatcher Company and he became vice-president and general manager of the Standard-Coosa-Thatcher Company.

WILLIAM A. L. SIBLEY has resigned as superintendent of the Whitney Manufacturing Company, Whitney, S. C., to become associated with the Ware Shoals Manufacturing Company, Ware Shoals, S. C., as assistant to CARL P. THOMPSON, vice-president and general manager. The Ware Shoals organization includes a cotton mill, bleachery, finishing plant, printworks, shirt factory, and other enterprises. Mr. Sibley is a graduate in textiles at the Georgia School of Technology, Atlanta, Ga. W. H. GLENN has been promoted from overseer of spinning to superintendent at Whitney.

S. H. SHERMAN has resigned as superintendent and assistant secretary-treasurer of the Lenoir Cotton Mill, Nelson Cotton Mill Company and Whitnel Cotton Mill Company, of Lenoir and Whitnel, N. C., to accept a position with John F. Street Company, Philadelphia, yarn merchants. Mr. Sherman had been at Lenoir for seven years, having previously been located in Providence, R. I., and Gastonia, N. C.

J. S. GAMMON is overseer of spinning at the Selma Manufacturing Co., Birmingham, Ala. He was recently with the Clark Thread Company, Austell, Ga., and prior to this connection had been overseer of spinning at the Exposition Cotton Mills, in Atlanta. H. H. SPRAY is night overseer of spinning at the Selma Manufacturing Co. He was formerly with the Lowe Manufacturing Co., Huntsville, Ala.

F. H. THOMPSON, formerly with the Saratoga-Victory Mills, Albertville, Ala., is night superintendent of the Selma Manufacturing Co., Birmingham, Ala. W. F. PHILLIPS is night overseer of weaving.

G. D. BATES and F. E. BELLYER, formerly with the Avondale Mills, Birmingham, Ala., have been transferred to the company's plants at Sylacauga, Ala.

E. W. KNIGHT has become overseer of spinning at the Washington Mills, Fries, Va. He was formerly located at Hogansville, Ga.

ARTHUR S. JARRETT, superintendent of the plant of the Aragon-Baldwin Cotton Mills, at Rock Hill, S. C., is now also superintendent of the company's plants at Chester, S. C., where he succeeds W. J. STILL.

W. E. RAMBOW is overseer of carding and spinning, and assistant superintendent, at the Adams-Swirles Cotton Mills, Macon, Ga.

D. W. ANDERSON, who has been manager and superintendent of Mill No. 4 of the Pacolet Mfg. Co., at New Holland, Ga., has been promoted to the position of treasurer and general manager of all properties of the Pacolet Mfg. Co., including the plants at Pacolet, S. C., and has removed to the executive offices at Spartanburg, S. C. He succeeds V. M. MONTGOMERY, who resigned as treasurer and retains the position of president.

GEORGE S. ELLIOTT has been promoted to the position of manager and superintendent of the Pacolet Mfg. Co. No. 4, at New Holland, succeeding Mr. Anderson. Mr. Elliott came with the concern five years ago as assistant superintendent.

Mr. Anderson

Mr. Elliott

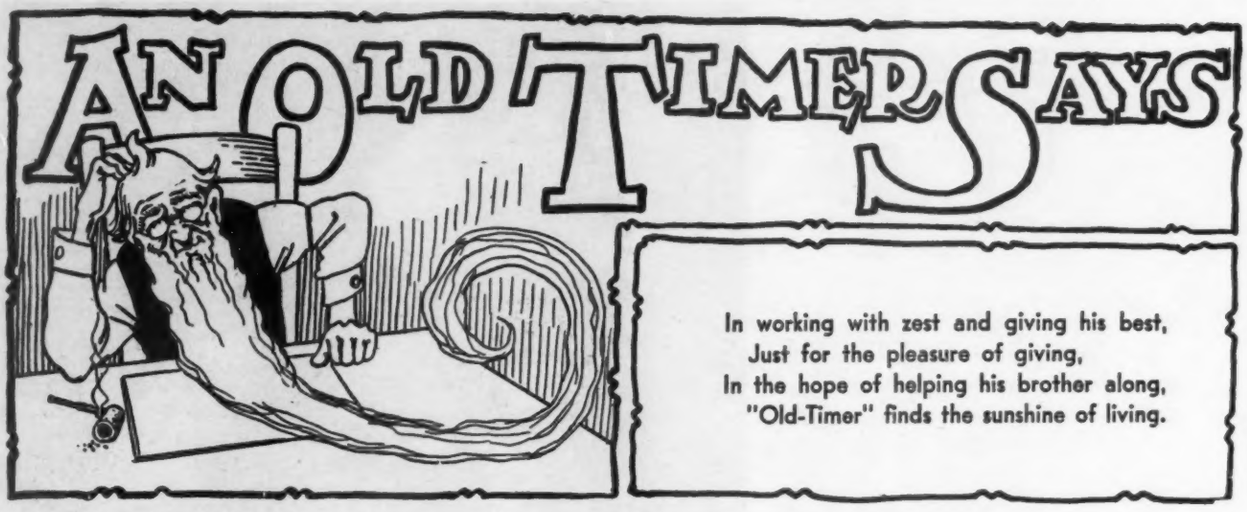
W. R. ROGERS has been promoted to designer at the Patterson Mills Co., Roanoke Rapids, N. C., succeeding D. A. PURCELL who has become assistant superintendent at the Aiken Mills, Bath, S. C.

Obituary.

JOHN G. BENTLEY, president of the Southern Silk Mills, of Greensboro and Kernersville, N. C., passed away on January 24th, following an illness of pneumonia. Mr. Bentley was 34 years of age. He established the Greensboro plant in 1925, and started the one in Kernersville in 1929.

LOUIS A. NORTH, sales representative of the American Aniline & Extract Co., of Philadelphia, died recently at his home in Hendersonville, N. C., at the age of 35 years. He is survived by Mrs. North and two children.

CHESTER I. CAMPBELL, for years manager of the International Textile Exposition in Boston and the Knitting Arts Exhibition in Philadelphia, died suddenly while speaking in Boston, Mass., following a heart attack, on January 20th. He was 63 years of age.


AN OLD TIMER SAYS
In working with zest and giving his best,
Just for the pleasure of giving,
In the hope of helping his brother along,
"Old-Timer" finds the sunshine of living.

The Story of Old Timer's Methods of Working and Management

Part Ten—Continued from January Issue

IN this, the tenth installment, Old-Timer does practically all of the talking, and tells a good joke on himself. This installment gets him into the slasher room, in his trip through the mill, and next month he will get with Jim again and discuss some practical pointers. From the slasher room they go into the weave room.

Readers desiring reprints of the nine previous installments are invited to request them.

Slasher Room.

There are quite a few items which come up in a large slasher room that do not apply to a small room, and vice versa. Therefore, it is rather difficult to explain certain things in a way that both the foreman or overseer of either a large or a small room will benefit by them. So now, Mr. Overseer, if you read something that you know will not apply to your room and therefore think it is all bunk—well, don't be so sure it is bunk, because it may be working successfully in a room of entirely different local conditions from yours.

One of the first jobs of which I was superintendent was back years ago when many mills were making their own sizings, soaps, etc., not necessarily because they preferred to, but because there were not many firms making sizings, and, stranger to say, there were very few sizing salesmen.

Just for a little diversion, suppose I give you one of the old formulas we used for sizing, scrubbing the floor and a few other uses you would of course laugh about.

Some Old Size or Soap Formulas.

Dissolve 6 pounds of caustic soda in 2 gallons of boiling water, and put in tank with 50 pounds of tallow. Boil and agitate 30 minutes. Add water to make 150 gallons, boil and agitate 30 minutes more.

If you want to use as size, the proportions are as follows for medium yarns: 150 gallons water (size finished); 70 pounds starch; 16 pounds size.

To use as soap for scrubbing floor, just dump a handful in a bucket of water—or a quantity depending on the condition of the floor to be scrubbed.

Yeah, it would wash clothes, too.

Now, here is a more elaborate one:

30 pounds tallow
2 pounds Glauber salts
3 pounds acetic acid
½ to 1½ pounds soluble blue
3 pounds Gum tragacanth
2 pounds alum.

First dissolve the gum tragacanth in 6 to 10 gallons of cold water. Let stand for two days, stirring occasionally. Dissolve salts and alum in bucket of cold water. Draw five gallons of water in 50-gallon barrel. (Have barrel near a source of steam supply—run about ¾-inch pipe down into barrel about 10 inches from bottom.) Turn on steam and dissolve tallow in barrel. Then mix other ingredients and bring gradually to a boil. Then finish filling barrel with water and boil 20 minutes. This gives 50 gallons of size or compound.

Formula for medium and coarse yarns: about 1 pound to 8 pounds of starch used to batch.

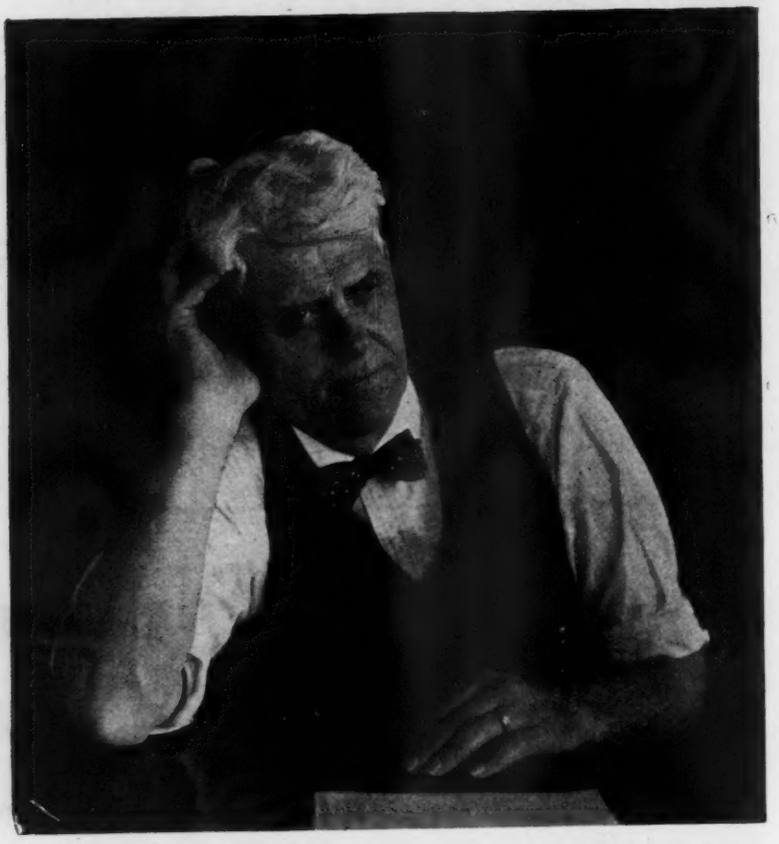
For heavier or lighter weight on the warps (yarn) vary the percentage of compound and starch.

Here's one still more elaborate:

6 pounds gum tragacanth, put in 100 pounds of water and let stand for 24 hours.

58 pounds corn starch, dissolved into 200 pounds of water. Dissolve thorough to avoid lumps.

Add the prepared gum tragacanth and boil for 20



Scratching Your Head Won't Eliminate LOOM DANDRUFF

But there is a sure cure. The dandruff-like particles that settle around your looms are a definite sign of poor slashing.

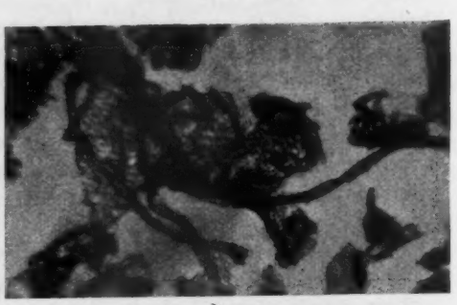
Correct control of your slashers will save real money.

Using the most recent information, Foxboro Textile engineers made the following improvements in slasher operation by installing slasher control.

Increased Slasher Speed	15%
Decreased Steam Consumption	12%
Actual Production Increase	10%
Warp Loom Breakage *Decrease*	35%

The cure for loom dandruff is an individual problem in every case. The continued intensive study of slashing problems made by our engineers *plus* our broad knowledge of control fundamentals is your assurance of complete satisfaction. We will *guarantee* definite *results and savings.*

We have an interesting folder, No. 612, which gives the results of actual tests on slashers. Write for it today.



"Loom Dandruff". Shedding from loom showing flaking-off caused by over cooking of starch granules (highly magnified).

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to 30 minutes. Cut 30 pounds of Japan wax into small pieces, add, and boil another 10 minutes.

Next add 30 pounds of castor oil, 20 pounds of turpentine, 30 pounds of glycerine, 20 pounds of kerosene, and 6 pounds of alum which has been previously dissolved in about 20 pounds of water. Now boil about 15 minutes. Cut off steam but continue to agitate until quite cold. Run off into barrels ready for use.

Formula: 12 to 20 pounds size or compound to 100 pounds starch. Cook 45 to 60 minutes.

Sometimes we would add 6 to 8 pounds of pure beef tallow to the kettle when making up a batch.

The uses of the above ingredients were for the following purposes:

Gum tragacanth, to lay fibers and stiffen the yarn.

Japan wax, to lay fibers.

Glycerine and castor oil, softeners. (Glycerine also attracts moisture.)

Turpentine, dryer, penetrator, stiffener.

Alum, antiseptic.

Starch, for body.

Of course, a formula like this was not used as a soap, because it was not a soap, but the first formula quoted was about as good a soap as we could buy.

While copying these formulas from my old records, I have noted with interest that some of the ingredients are cheaper today (1932) than they were those long, long years ago. For example, we were paying 7 to 8 cents for tallow, while this year I have bought tallow for 5 cents delivered. The tallow bought this year is rendered nicely, while the tallow we got then was often rancid and contained foreign matter in many shipments.

Yes, we also made our own belt cement. Here is one belt cement formula which many mills paid as much as $25.00 for:

½ pound white glue
4 ounces cooper's gelatine (came in sheets)
4 ounces American isinglass
1 ounce white lead
1 pound Buffalo frozen glue
½ pint alcohol.

Dissolve white glue, isinglass, gelatine, white lead and alcohol in hot water, then mix in frozen glue while hot. Continue to agitate until it thickens.

This old record book contains a mass of other information which might be interesting to some of my readers, but these new-fangled Editors we have these days are liable to cut it out because it is not information which mill men would or could use in these modern times; therefore I will pass it up.

Anyway, the sizing firms made rapid progress, and mills, most of them, soon found that they got so much better results from the bought sizings, soaps, etc., that it no longer paid to "make your own".

I have had some rather funny experiences with sizings, even after sizing firms were putting out a fairly good product. You know most every fellow has at some time had what he thought was a bright idea, only to find out later that it was not such a bright idea after all.

For example, back in 1906, I believe it was, the cotton in our section of the country was so darn weak we could not spin or weave the stuff. You could hear of mills all around the country that had looms stopped because the spinning production had been cut so much by putting in twist in an effort to spin it. Well, I had one of those bright ideas, which reasoned something like this: If a shoe-maker can make a thread so much stronger by putting bees-wax on it, why won't bees-wax make my warp stronger by adding it to my sizing?

I hired a man who had a horse and buggy and he drove all over the country buying up bees-wax from the farmers. It came in big balls, little balls, flat cakes, and every other form you could think of, but it was bees-wax and that was what I wanted.

I started my experiments by putting in four pounds to the kettle. The sized yarn broke no stronger. I put in twelve pounds and still the sized yarn broke no stronger. Then I began to get worried. I knew there must surely be something wrong, because any fool would know that bees-wax would make a cotton thread stronger.

After reeling and breaking so confounded much yarn that the waste house man asked me to hold up a few days so he could catch up, I stopped to meditate—what in Sam Hill could be the matter? Meantime, the whole United States seemed to have heard that I had a man out hunting bees-wax, and good gosh! I didn't know there was that much bees-wax in the world. I cut the price in half and the blamed stuff came in faster. Finally I left word with the gate keeper that I was very, very busy and that we had enough bees-wax to last until Gabriel would blow his trumpet. That did not stop them. When I went home at night there were about seven waiting for me at the house.

Fortunately I had a personal friend who was a chemist and lived in a northern city, so I boarded the train to visit him. His given name is, or was, Robert. He "cashed in" some years ago.

Glad to see you, OLD-TIMER. *What brought you up this way without giving me any warning?*

Oh, nothing in particular, BOB; just felt like I wanted to get away from my work a few days. (Really, I had to get away from that mob wanting to sell me bees-wax). Of course BOB knew I was lying; he knew I had some kind of ax to grind. (Funny how a man thinks he can get away with a thing like that, isn't it, fellows? Ever try it? Sure you have, and you knew at the time that the man you were trying to fool knew you were lying, but still you do it. Human nature sure is some queer animal!)

Want to take in a good show tonight, OLD-TIMER, *or what shall we do?*

No, BOB, I do not care for a show this time. We sure saw a good one last time I was up here, but if it suits you, we will just sit around and talk tonight, as I am taking that 6:50 A. M. train back South.

After supper—they called it dinner, but it was supper to me just the same—we went out on the porch, and after I had asked all the questions about everything I could think of besides bees-wax, I finally popped the question to him.

BOB, I have been experimenting with putting bees-wax in my sizing mixture to add strength to the yarn. It makes the yarn feel very smooth but does not seem to make it any stronger.

Haw! Haw! He! Haw! That sure is a good one.

(Continued on page 63.)

THE SOLUTION TO BEARING PROBLEMS

Moccasin Bushings have made a large contribution to the success of many textile machines by solving the bushing problem once and for all.

Moccasin Bushings have a patented self-oiling feature. Specially treated white pine plugs, inserted in the bushing, carry oil in a continuous film to the bearing surface.

Friction, wear, loss of power, waste oil, dripping oil, dangerous hand oiling—all the disadvantages of the ordinary bushing are eliminated. Moccasin Bushings are notably long-lived—some having been in use for ten years without showing the least sign of wear.

It will pay you to find out what Moccasin Bushings can do on your looms, twisters and loose pulleys. Write us for complete information.

Write for Descriptive Literature

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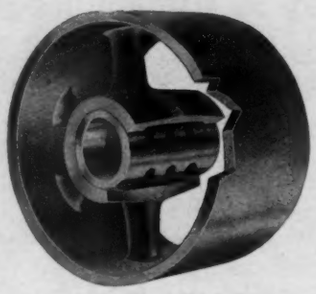

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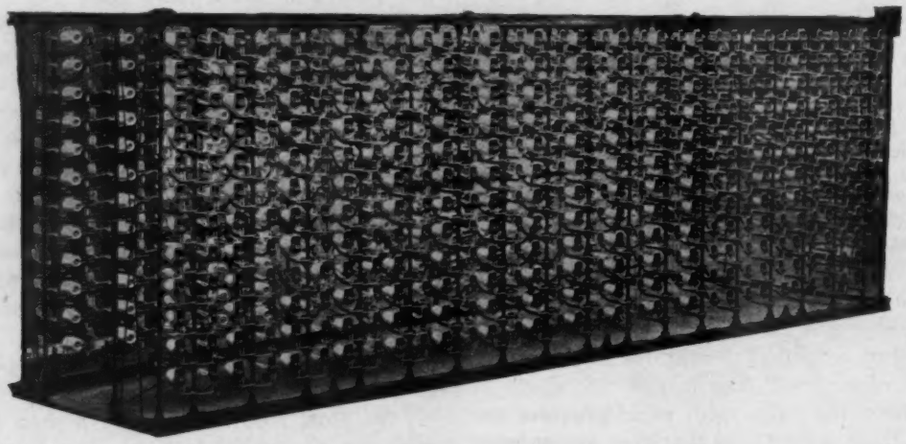

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The even tension of this creel insures perfect beams whether made on a direct or horizontal warper. Tensions fluctuate in a very narrow range—generally from 10 to 14 grams—not from zero to 75, as with other creels.

The speed of the creel depends entirely on that of the warping machine. The tension device has proved efficient up to 650 yards a minute. It functions with remarkable simplicity and is absolutely guaranteed not to cause any undue strain on the yarn.

Another valuable feature is the automatic stop with signal lights which stops the warper and indicates exactly where an end has broken. However, the tension is so perfect that many manufacturers have reduced end breaks as much as 80% after installing this creel.

Each bracket and tension forms a complete unit which may be shifted to any horizontal or vertical spacing desired. It takes cones or spools. The creels can be obtained for either inside or outside yarn sheet delivery. Send for illustrated folder C-3 describing machine.

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HOW OTHER MEN MANAGE

Practical Discussions by Cotton's Readers On all Varieties of Mill Subjects

Hey, Fellows, "Wash" Is Back--Discussing Card Settings!

EDITOR COTTON:

In the January issue of COTTON, "CONTRIBUTOR NO. 6181" terminates his article by asking, "What in the world has become of 'WASH'?"

I want to thank the gentleman for his interest in me. However, the real reason for my silence is that I find the present contributors to COTTON up-to-date and able to carry on the mission that has made COTTON the leading textile journal of the world. Please be reminded that I have had more than my share of space for over 20 years.

In the January issue, on page 63, I see that "CONTRIBUTOR NO. 6172" wants criticisms of the card settings which he listed in his letter.

In order to arrive at the real principle of carding, we must try to picture in our mind what takes place at every point of action in back and through the card. So we begin at a point between the feed plate and the licker-in. As I have repeatedly stated in this department, when a contributor gives a certain setting he should also give the reason. Now, picture in your mind a fringe of cotton, hanging over the nose of the feed plate, with the licker-in teeth gradually taking so many fibers at each revolution and conveying them to the cylinder. Now please consider what takes place at this point. The licker-in should have a surface velocity or speed of 1000 feet per minute. So the foreign matter has a tendency to follow the surface of the licker-in, as do the fibers. We know that the teeth of the licker-in will grip the fibers, regardless of any interference such as is offered by the mote knives. Therefore, when the spiral arrangement of the licker-in fillet is considered, we must admit that the closer we set the licker-in to the feed plate, the more we protect the card clothing. In other words, if we set the licker-in as close as possible to the feed plate, if a lap is allowed to run out, or any hard lumps escape, the licker-in is checked, owing to such a close setting, and all that is necessary is to turn the licker-in backward and take out the lump or lumps of cotton.

On the other hand, if the setting is wide, a great amount of stock will get down as far as the mote knives, and in some cases will find its way to the cylinder, and much damage results. I have seen in many cases where the mote knives were broken. So then, why risk any disaster at this point?

I assure the readers of this department that the closer they set the licker-in to the feed plate the better will be the results.

Of course, great care should be taken that the licker-in teeth should not come in contact with the feed plate. So, according to my judgment, we must take our hats off to "CONTRIBUTOR NO. 6172", who gives a setting of 7/1000, feed plate to licker-in.

As regards the mote knives, please be reminded that they are supposed to extract foreign matter only from the surface of the licker-in, so, according to my judgment, the setting of top 7 and bottom 7, as given by "CONTRIBUTOR NO. 5044" in the October issue, is the best.

Next we have the licker-in screen to consider, and the action here is the same as the front knife plate, and again I agree with "CONTRIBUTOR NO. 5044", who in October said, "Front plate to cylinder to get desired amount of strips". The closer you set the front knife plate, the less strips, and the same reasoning holds good with the nose of the licker-in screen.

It is hard for me to disagree with my friend, "CONTRIBUTOR NO. 6181", who, on page 74 of the January issue, comments on the suggestions of "CONTRIBUTOR NO. 5044". But he makes a bad break when he states, "the place to set the front plate is to turn a flat until it is about in the center of the top of the plate, and the plate set up or down according to the amount of waste required." There is not one carder in a hundred who would agree with him on this. In all of my mill experience I never knew a front knife plate could be set up or down. The cylinder travels at a surface speed of 2000 feet per minute, so the closer setting at this point means more suction, and a wide setting means that the flats retain a certain amount of good fibers. It is a dual operation at this point between suction and clogged flats.

I agree with the setting of 10/1000 as given between the licker-in and cylinder, for as you know, there is no combing action at this point. On the other hand, should a lump of cotton escape the feed plate and mote knives, the result would be a bad jam.

As regards the setting of the flats, again according to my judgment, "CONTRIBUTOR NO. 5044" is right with a setting for them all of 10/1000. No builder of cards to my knowledge will agree with progressive flat setting. Why? Because the same amount of stock

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WE invite our readers to make use of this department for the discussion of any and all problems arising in the mill or finishing plant. Questions, answers or letters need no conform to any particular style and will be properly edited before publishing. The editors do not hold themselves responsible for any statement of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

◆ ◆

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is offered to the first flat that has passed the action of the licker-in; then why should not every flat be called on to do equal work? If a card is properly ground, you will find that every fiber will be acted upon with a setting of 10/1000.

Again, please be reminded that the closer the flats are set, the weaker the yarn will be. It is the law of compensation.

In closing, I wish to ask the boys of this department that should they make a test in tune with my suggestions, please use the same stock from the same bale of cotton. WASH (R. I.)

Causes of Bunches and Slugs, Carding on Woolen System

EDITOR COTTON:

I note the question of "CONTRIBUTOR No. 6186", on carding cotton by the woolen process. This man states that he is having trouble, on a mix of two-thirds India and one-third American, and a mix of one-half China and one-half American, with bunches or slugs in the yarn on wool cards. He said that sometimes the bunches appear with regularity and sometimes vary both in space and ends. That pulling bunches apart shows them to be short fiber that is practically fly.

It is my experience that the plan of running China or India cotton mixed with American cotton, into 2.75s filling yarn as he says he is doing, is not at all practical. At one time we attempted to run a mixture of China cotton and American cotton into filling yarn, but due to the fact that China or India cotton is so much shorter staple than American cotton it is impossible to set the spinning rolls to take care of both lengths of staple, and uniform yarn is not possible.

It might be possible to spin a mixture of India and China cotton with American cotton provided American cotton of approximately the same length of staple as China or India cotton was used, but this procedure would require a spinning frame with very small rolls which could be set close together to accommodate a short staple mixture of this kind.

CONTRIBUTOR No. 6200.

EDITOR COTTON:

In your February issue "CONTRIBUTOR No. 6186" brought up some questions with regard to carding cotton by the woolen process. The bunches or slugs that he is having in his filling yarn may be resulting from one or several sources. The most important process in his case seems to be that of securing a thorough mixing of his stock before it reaches the cards. India and China cotton, which have a wiry feel, will not mix well with American cotton, and there is difficulty in getting a proper blending of the stock. If the two stocks are not properly mixed, there is a tendency for the wiry stock to bunch together and form a slug in the yarn.

When he is confident that there is a proper mixing of the stock, it is then necessary to look to the setting and adjustments at the cards. "CONTRIBUTOR No.

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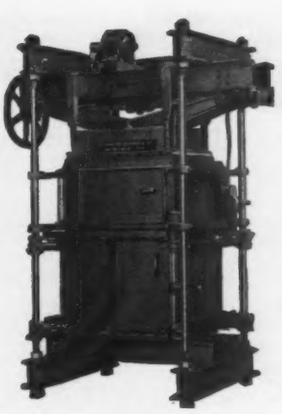

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CHEMISTS TO THE TEXTILE INDUSTRY.

6186" did not state whether he was double carding, and if so, by what system. If he is running his breaker card sliver through a lap winder, then he must make sure that he has a good sharp licker-in on his finisher card. If there is a dull licker-in working on a lap winder lap, there will surely be some lumps jerked into the card. The worker rolls and the stripper rolls must be kept well ground and set so as to give a uniform action on the stock as it goes through the card. The settings of these rollers will vary with different stocks, but a 12-gauge at the back of a 10-gauge at the front would seem to be about right for this stock. The fancy must be set to a gauge that will give a uniform transfer of stock from the cylinder to the doffer.

Sometimes fly will accumulate in the wooden bonnet on a woolen card especially if the interior of the bonnet has become rough. In such a case it is advisable to sand-paper the inside of the bonnets and apply a coating of shellac. With a smooth surface the air currents in the bonnets will keep practically all fly from accumulating and then dropping into the cylinder and forming bunches in the yarn.

"CONTRIBUTOR NO. 6186" stated that his card room is equipped with humidifiers, but he did not state whether or not he was using an oil spray on his stock either at the opener or at the picker. The application of oil to his stock will keep down a large amount of fly not only in his card room but within the machines as well. I would suggest a two per cent application of oil for the two mixes which he is running.

I agree with "CONTRIBUTOR NO. 6186" that his trouble can be overcome, and I hope that some of the suggestions offered will assist him in eliminating it.

CONTRIBUTOR NO. 6199.

How About Fanning Out in the Spinning Room?

Answer this man's questions—and give your cleaning schedule for spinning . . . . . .

EDITOR COTTON:

I would like to see in "HOW OTHER MEN MANAGE" some discussion by mill men on the subject of fanning out in the spinning room. We are running 40s and 50s combed warp. We fan out every hour, or nine times per day. The spinners are required to stop the frames on each side of the one being fanned and fan around the frame twice before starting it up.

We find that we keep a very clean room with this system, but I should like very much to hear from some other mills which do not fan out and some which do fan out; together with a discussion as to their experience as to the best system for cleaning a spinning room of this kind, going into detail as to methods, schedules, etc., in every particular with regard to spinning. In this connection I would be glad to have ideas and experiences as to whether there are more or less gouts on the fanning out system.

As stated, I would be glad to have your readers present a full description of what according to their experience on work of this kind is the best method for keeping the spinning room clean.

CONTRIBUTOR NO. 6201.

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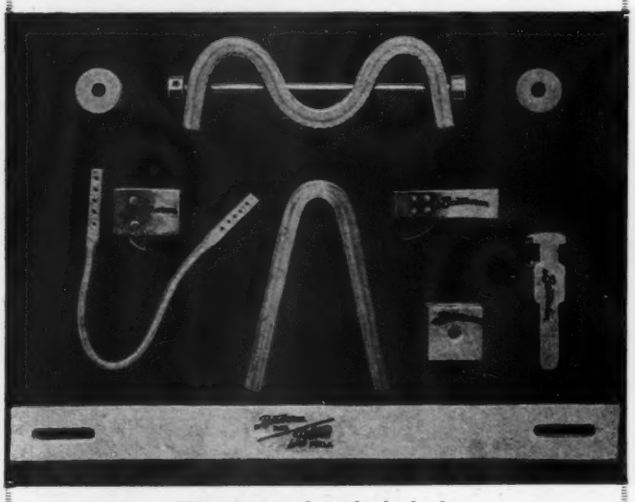

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Another Method of Slashing Crepe Yarn

EDITOR COTTON:

I note in the December issue of COTTON a request from "CONTRIBUTOR No. 6167" for discussion on how to slash a warp of 1,534 ends of 80s/2 regular twist and 1,534 ends of 80s/2 reverse twist to prevent rolling and breaking at the lease rods.

In our mill, the section beams are made to contain only one twist yarn and are laid in the slasher creel as shown in Fig. 1, with all right twist beams at the top revolving clockwise to give one sheet of yarn containing half the number of ends in the finished warp. All the left twist beams at the bottom revolve counterclockwise to give a separate sheet of yarn containing the remaining ends for the finished warp.

The top sheet of yarn is passed over a scalloped board, rod or pipe, at *A*, to divide the sheet into sections about two inches wide with about two inch open spaces between the sections. The bottom sheet is passed over scalloped board *B* similarly. Boards *A* and *B* are placed laterally, so that the yarn sections from the bottom sheet come directly under the open spaces left in the top sheet.

From these scalloped boards the yarn goes directly to the size boxes, two of which are used—see Fig. 2. The yarn from the top section passes through Size Box No. 1 where the size has been tinted to mark the reverse twist yarn in the warp. The yarn from the bottom section passes under Size Box No. 1, then up and through Size Box No. 2, where the natural color size is used.

Both top and bottom sheets of wet yarn are then put onto the large drying cylinder in about two-inch sections, alternating tinted and white. This separating into sections, of course, accomplishes two purposes; namely, it keeps the opposite twist yarns from coming in contact with each other, preventing their rolling together, and holds the tinted yarn away from the white while they are wet, thus preventing the tinted yarn from staining the white yarn.

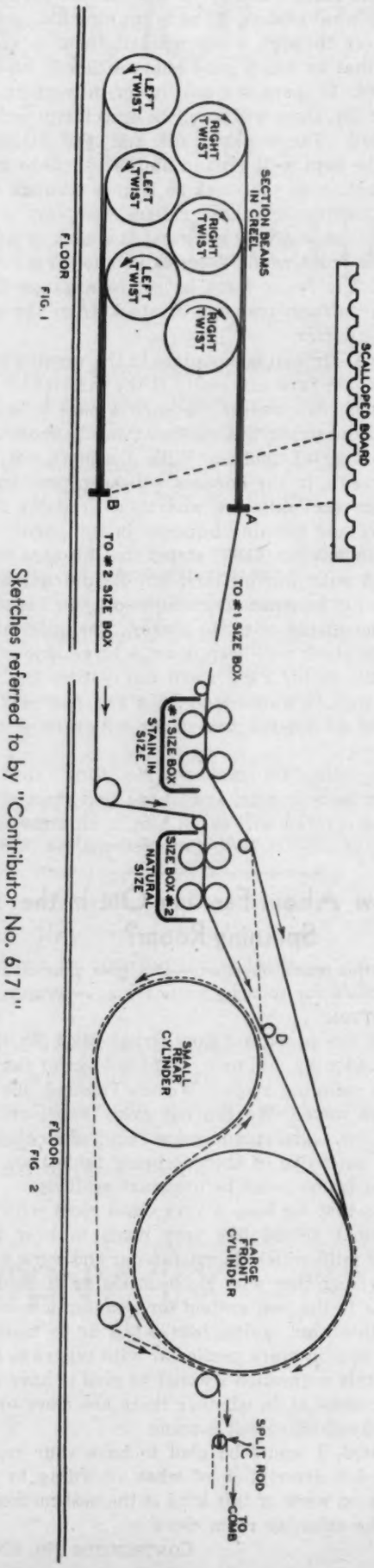
The yarns are taken around the drying cylinders in the usual manner. After leaving the cylinders, the tinted and white yarns are further separated by a large split rod *C*, Fig. 2. Each of these sheets is further divided by two small split rods, inserted to match the sheets of yarn from each three beams on the creel. These splitting processes are necessary to prevent the ends being stuck together, and to insure a straight piece-up, should an end break on the slasher.

The two sheets of yarn are now sized, stained, dried and split up, so that it is only necessary to lay the ends in the expansion comb according to the plan and pattern desired.

A practical slasher man can arrange the plan to suit his slashers. He can experiment a little, and might find some rolling between the size boxes and the front cylinder. If this occurs he can put another roll at *D*, Fig. 2, holding the two sheets of yarn still and thereby eliminating the rolling.

Slashing crepe yarns is not a terrible job, but it is one that requires a lot of careful attention to details which most cotton slasher foremen and operators will not give unless they can be made to see the necessity.

CONTRIBUTOR No. 6171.



Sketches referred to by "Contributor No. 6171"

Short Doffing

EDITOR COTTON:

The practice of short doffing is in vogue in practically every mill but is seldom discussed in overseers' meetings, and I have never seen a thorough discussion on the subject in the textile journals. Since this subject is great enough I think that its nature will warrant thought and reasoning.

This is one thing that is not only practiced for convenience's sake, but many times to prevent the congestion of doffing two or more machines as fast as the tender can get to them, or having more than one stopped at one time.

We will consider in detail the fly frame situation, that is from fly frame to spinning room, and will use 3.00-hank roving for an example, as this is an average size that is comparable to heavier and lighter roving.

A common 8x3½-inch fly frame will carry approximately 14 ounces of roving per bobbin when filled, and by lacking one or two changes filling the bobbin, you have reduced the amount on the bobbin as follows: one change about 34 yards, two changes about 67 yards, and on three changes about 101 yards, which means a reduction of 94, 186 and 281 grains per bobbin respectively.

Speeders carry varying numbers of spindles, and by computing a figure on a 152-spindle frame we see that by short doffing one change we have a reduction of 2.042 pounds, two changes 4.05 pounds, and three changes 6.11 pounds, which increases the cost of doffing by an amount of 1.53 per cent, 3.04 per cent and 4.56 per cent respectively, which considers handling costs only. By further consideration we will reckon the extra time that each machine must stand while doffing, the profitless consumption of power, the depreciation of belting and pulleys, which seem to be almost an incalculable figure, nevertheless they occur.

This has been considered from the card room only so far; let's go farther, to the spinning room.

The average spinner of today will place in the creel 900 to 1,250 bobbins of full roving in an average ten-hour day, and by considering a daily average of 1,075 bobbins per spinner we will increase by short doffing, one change 16 bobbins, two changes 36 bobbins, and three changes 51 bobbins. These figures seem minute yet they mean increases of 1.49 per cent, 3.35 per cent and 4.74 per cent, which if the spinner had this time to devote to patrolling would decrease the amount of laproll waste and increase the yarn production, and likewise improve quality.

Another point is reworkable waste from stripping these bobbins in the spinning room whether it be done on bobbin cleaners or by hand, where 20 to 35 yards of roving are left on the bobbin to be re-worked, will mean on the 16 bobbins, 450 grains, 36 bobbins, 1008 grains, and 51 bobbins, 1428 grains, which are small amounts, yet in the course of a year will mean 19.3 pounds, 43.5 pounds, 61.3 pounds in the respective instances, which will aggregate a cost figure of 59 cents, $1.32, and $1.84 per spinner basing the cost of $.0308 per pound for re-working waste from the spin-

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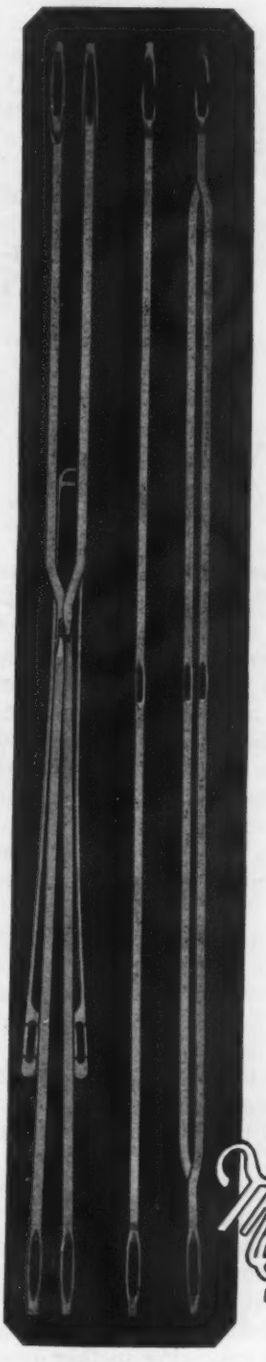

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ning room back to be spun, and where a plant has 25 to 150 spinners this will climb to a very appreciable amount.

Also, short doffing has other drawbacks as well, on the card it increases creeling on drawing frames, and on the slubbers short doffing on drawing means extra cans to turn pieces from, which will increase the waste from that point, and on each of the fly frames the results are that extra creeling must be done as more waste made to be re-worked, and, too, where extra creeling is done, it is dead sure to make defective places in the product produced, whether it be in roving or yarn, though it may be in lumps, long splices or thin places, and surely the yarns that are produced are lacking enough in perfection, and to make extra bad places to correct makes the picture appear more horrid.

Spinning short doffing calls for extra spooling, and consequently more knots, or extra shuttles to be filled, or batteries to be re-filled, and on twisters extra doffing means more knots or extra splicing expenses which are not to be invited.

Now, do you allow or advocate the practice of short doffing?

J. R. (GA.)

Stopping the Lap When Picker Knocks Off

EDITOR COTTON:

I sincerely hope that the readers of COTTON make it a habit to keep the different issues of the magazine in order that they may use them profitably for future references and textbooks. Especially I hope they kept the July 1932 issue in order that they may connect or keep together the article in that issue regarding one-process pickers for print cloth mills and this article. (The July 1932 article referred to was entitled "An Opening and Picker Room Lay-Out for Print Cloth Mills", and appeared on page 58.)

I hope you will believe the writer to be sincere in saying that he is vitally interested in picker improvement and development.

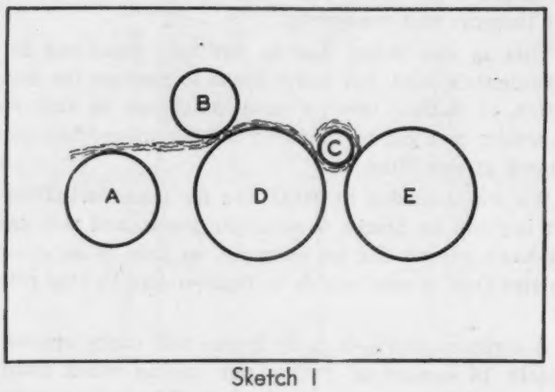
For the past few years, we have been so much in the habit of taking things for granted, and of taking the attitude of "letting George do it", that I am afraid we have passed up some very good chances and sent opportunity knocking at the door of some one else.

I appreciate the comments made (verbally and otherwise), the curiosity aroused, and the efforts some are making to beat what has been done as related in the July article referred to.

How many of the old timers have given serious thought, if any, to the frequently asked question: What harm is done to the lap by letting it roll after the machine has knocked off for doffing? Also, let me ask, what have you done about it?

In answering the first question as near a practical answer as I know is given by answering another question: What happens to an orange when you place it on a table and roll it, applying pressure at the same time? Of course the answer is that the orange becomes soft, but should we go deeper into the reason and have some way of x-raying the orange, I think that we should find that the orange is soft because the rind and pulp have become broken, the tissue separating the parts has become thin, stretched and torn in many places; in other words, its resistance is broken down.

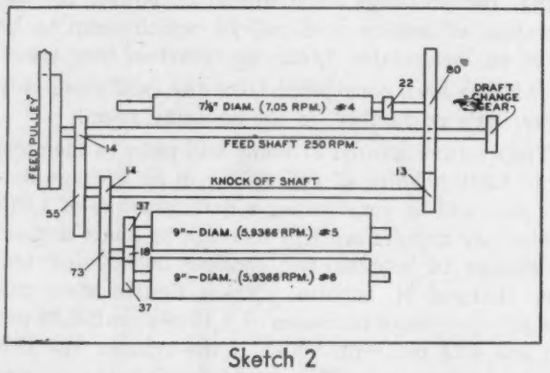
That is exactly what I think happens to the picker lap, because of several factors. The first being that the lap is rolled by frictional contact between the lap



Sketch 1

pin and the calender rolls; second, because of the great pressure applied by the calender racks (loggerheads or head blocks) during the process of manufacturing; and third, because the two front calender rolls are nine inches in diameter and the lap pin fitting down between them carries the lap in several parts of a circle from the time it leaves the vertical set of calender rolls until it reaches the horizontal or front two rolls. The cotton would necessarily be much in the order as shown in Sketch No. 1, indicated by the arrows. In this sketch, *A* is the fourth or bottom roll of the vertical set; *B* is the intermediate roll; *C* is the lap pin; and *D* and *E* are the front calender rolls.

Answering the second question—as to what is being done about it—a prominent machinery manufacturer has developed a device to raise the calender racks when the machine knocks off, and the device does release the pressure, except that which the weight of the lap and the weight of the lap pin applies, which is still harmful, especially to the outside and nearby layers of the lap.



Sketch 2

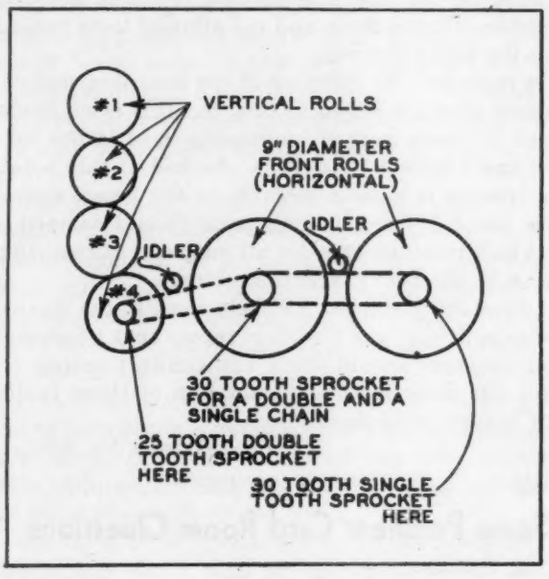
I am told that there are other devices on the market, but so far as I know there is not a device that is universally accepted as removing the damage done to the lap by its revolving or rolling after the lap is made and the machine has knocked off. The question that

came to me was: If it is harmful, why allow the lap to roll at all after it is made?

With that thought in mind, I personally made an inspection of a picker, counted the gears, measured the rolls, etc., and am presenting Fig. 2 to show how I found it. I have also incorporated in this sketch the number of revolutions per minute of the rolls, on the basis of 250 r.p.m. for the feed shaft. Figuring the inches delivered by roll 4 and the inches wrapped by 5 and 6, I am suspicious that there is quite a bit of stretch variation between 4 and 5; however, I am dealing with another proposition here.

I found the ratio between 4 and 5 rolls to be 1.218, and using that as a basis, I hit upon the idea shown in Fig. 3.

Using a 25-tooth sprocket on roll 4 and a 30-tooth gear on roll 5, and a 30-tooth gear on roll 6, I think I have overcome some of the stretch that existed before



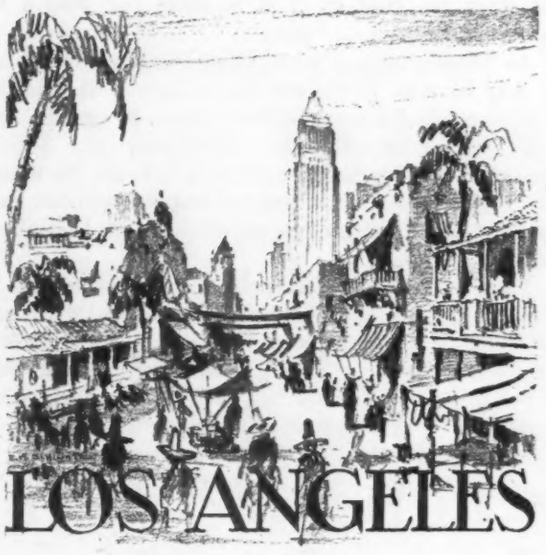
Sketch 3

the change. I know that it does what I intended it to do, namely, stop the lap from rolling when it was completed, and I also find that I have at the same time created other desirable points that I'll admit I had no idea of in the beginning.

First, you will be interested in knowing about the sprockets. The 25-tooth sprocket on roll 4 is of ½-inch pitch, and is for double link roller chain; the 30-tooth sprocket on roll 5 is made to carry the double chain received from roll 4 and at the same time has a set of teeth for driving the 30-tooth sprocket on roll 6, which is ½-inch pitch and for single roller chain. The idler sprockets are of course for the single and double link chains respectively, and they are adjustable, which allows the chains to be set tight enough to eliminate all back-lash.

Now, as roll 4 stops when the machine knocks off, the rolls 5 and 6 being driven by roll 4 also stop; the picker tender raises the calender racks and doffs the machine as usual. True, he breaks the lap end in the doffing, but it is broken just as straight and requires no more effort or experience than did the former lay-out, and the lap is much easier to start at the cards.

With this new method it is just as easy to stop



SIX weeks before Cornwallis' surrender at Yorktown made the American Declaration of Independence an effective instrument, Felipe de Neves, Spanish governor of California, founded El Pueblo de Nuestra Senora la Reina de los Angeles—the village of Our Lady the Queen of the Angels—with an initial population of 11 families. By 1810, the town had grown to 365 inhabitants; by 1850, to 1,610. A sleepy Spanish village, drifting down the years . . .

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What wrought the metamorphosis? Too many things to list in detail. They run the whole range of natural resources, of industries, of arts. Suffice it to say that the world's commerce flows into and out of Los Angeles on an ever widening stream.

Cotton is comparatively a new-comer to the city, but its exportation through the Post of Los Angeles already ranks ahead of any other agricultural commodity in value, and is second only to petroleum products in the entire list of the city's exports. It is moreover, cotton of exceptional quality. Practically none of the staple is less than one inch in length, and it ranges to better than 1⅛ inches; and its extreme whiteness has necessitated the establishment of Extra White Standards for its classification.

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and start the feed as it is to start and stop a fly frame and not have a "piece".

As those familiar with pickers know, oftentimes we may have to knock off the pickers while the lap is being made, for any of these causes: power off, belt break, opener or condenser choke, etc., etc. Should this occur now, we just simply have to make the necessary repair and start where we stopped without having the "pieces" heretofore associated with these happenings.

I am using these sprockets and chains on the 12 pickers as shown in the article in the July 1932 issue, and find the arrangement to be very satisfactory. However, should any readers see anything that they do not agree with, I hope they will send in their criticisms, and I will appreciate them. I will be glad to answer any questions about this arrangement.

CONTRIBUTOR No. 6123.

A Roller Coverer Discusses the Causes of Roll Leather Splitting

EDITOR COTTON:

I have been interested in reading in recent issues of COTTON the discussions with regard to the causes of roll leather splitting. One of these, from "CONTRIBUTOR No. 6150", appeared on page 106 of the October 1932 issue, and another, from "CONTRIBUTOR No. 6168", was on page 65 of the December issue. I suggest that your readers who have not studied these articles look them up and do so. (Clippings of these articles will be furnished to any reader upon request —The Editor.)

As a roller coverer, I would like to discuss this subject as I see it; although I would not attempt to give a correct solution to the problem, but only to give my views as to what I have read from people of authority regarding leather.

As I see it, the roller coverer should study leather from the animal to the tanner; then as he uses it and follows it through the mill. This can be done with the aid of properly prepared reading matter which is available from several sources. Also, we should use every means possible for analyzing the leather as it is used in the shop, and study the structure and condition of the various brands as they are used. An examination of defective rolls, as reported or found in the mills, will give lots of information as to the causes of splitting.

As I see the roller coverer's place in these matters, he is a "go-between" or middle man between the leather manufacturer and the user of leather covered rolls, and I believe that he should spare no effort in studying leather from all angles.

In my study and experience I find that leather splits in two different places—the most serious is not the separation of the epidermis from the corium or true skin, as has been stated in your columns, but it is the split at the center of the corium or true skin. This is caused by the soft and scattered fibers between the two firmer layers of true skin.

In regard to the separation of the epidermis or the thin "film like layer" from the true skin, this is no doubt caused by the failure to remove the collagen or gelatinous substance that is found under the epidermis of all skins. Failure to remove this properly will cause a grinding sensation while the roll is running and will result in a slip grain.

This trouble can be found in the roller shop and rejection on the skin made before using. I do not believe that this condition can be attributed to the method or practice as referred to in connection with New Zealand skins, by "E. D. (R.I.)" on page 62 of the August 1932 issue, but rather to a failure on the part of the tanner to remove this substance. And, referring to another writer's theory about this substance decomposing by bacterial action, causing the split, I will say that I have found this substance in leather in very good condition, although it should be removed in the tannery, and in case bacteria had set in while the skin was enroute to the tannery, it should be stopped there and not allowed to be passed on to the roller coverer.

In regard to the splitting of the true skin section, I cannot give a solution to this, but this is no doubt caused by some method improperly used in the tannery, and I believe it could be checked at this point. This trouble is more noticeable in the heavy sheepskins, and I believe that all mills should demand a strict light medium skin for all purposes of covering, and avoid the heavy, splitting skins.

I hope this comment will help some in the discussion on splitting, and I wish to repeat that I feel that roller coverers should study and conduct proper research for detection and elimination of these faulty skins before using them.

CONTRIBUTOR No. 6202.

Some Pertinent Card Room Questions

EDITOR COTTON:

Will you please place the following questions, covering a wide range of inquiries for carders, in the "HOW OTHER MEN MANAGE" department?

1. Do you think wrapping the roving on the flyer presser 2½ wraps is indispensable? A wrapping of 1½ times will allow a small bobbin to run, and by just placing the roving in the presser eye will make possible the running of a bobbin that has had a layer of roving removed, and not make it necessary to break this end back, however, this bobbin will be soft when doffed. Is this practice justified?

2. Should other operatives except the frame tender be allowed to repair breaks on fly frames?

3. Does dyed cotton always require more twist in roving than white cotton?

4. Should a section man do his own oiling, or should his job be increased and an oiler put on to do this work?

5. Is it best for each frame hand to mark his own roving, or should a roving marker do this work?

6. In the case of a portion of a section running, and the section man doing the other work, such as sweeping, laying up roving, etc., should the section man's wages be cut, or should he be paid his regular rating regardless of the work he does?

J. R. (GA.)

Comments On December Articles

Further information on cleaning long draft spinning, covering rolls, and oiling fly frame bolsters . . .

EDITOR COTTON:

YOUNG TIMER in the December issue, page 79, asks about the amount of cleaning that the long draft system of spinning requires. His question calls for a long study, but with the experience the question can be easily answered. Experience in a plant of 70,000 spindles running from 4s to 49s, on cotton ranging from ⅞-inch to 1¼-inch, for a period of 4½ years, should give a fair opportunity to gather such information.

Of these 70,000 spindles, 25,200 were equipped with common draft, running 1 1/32-inch cotton, Strict Middling, Middling and Strict Low Middling blended, almost continuously on 23s warp, warp build, which we shall use as a standard for the other spinning frames equipped with long draft. On these 100 frames (252 spindles each) four "clean-up" hands, termed "roller pickers", picked the top rolls daily, and cleaned the roving creels twice weekly. The spinners averaged 14 sides each, 2-inch rings, 23s made from 4.25-hank roving double, 10.85 draft, 4.75 twist multiple.

The same count was run on the long draft frames from 3.00-hank roving double, 15.33 draft, but instead of one roll picker on 25 frames or 6,300 spindles, a roller picker was required on 16 frames of 204 spindles each or 3,264 spindles; the spinner still having 14 sides or 1,428 spindles as compared with 1,764 spindles on the common draft; and it is also necessary to have a tension wire cleaner on 72 of these frames in order to eliminate an amount of loading of dirty waste that will collect on the tension wires which ordinarily would run into the yarns and make bad dirty places similar to gouts.

On 7s, a roller picker would be necessary on 12 frames, long draft; and on 30s, 36s, 39s and 49s, a roller picker would be required on 24 frames of 208 spindles each; the spinner running 15 sides on 30s and 36s, and 16 sides on the 39s and 49s, 104 spindles per side.

Oftentimes objections are made to long draft due to the additional cleaning required, but where breaking strength is a vital factor long draft certainly has advantages. From daily tests on the counts involved, I have seen these tests from the long draft show from 3.5 to 12.75 per cent stronger yarn than the common draft. This would not be a mere happening or exception—but almost an everyday affair.

The humidity of the two spinning departments was set at the same figure, that is, the controllers were set to keep the same relative humidity, but it seems as though the humidifiers in the long draft room were spraying more than those in the department equipped with common draft.

Cost of Covering Rolls.

YOUNG TIMER is correct about the re-covering cost of sheepskin rolls, as there will be some 10 to 12 per cent more rolls per thousand to be returned to the roll covering department from the long draft than from the ordinary draft frames. The extra weight on the

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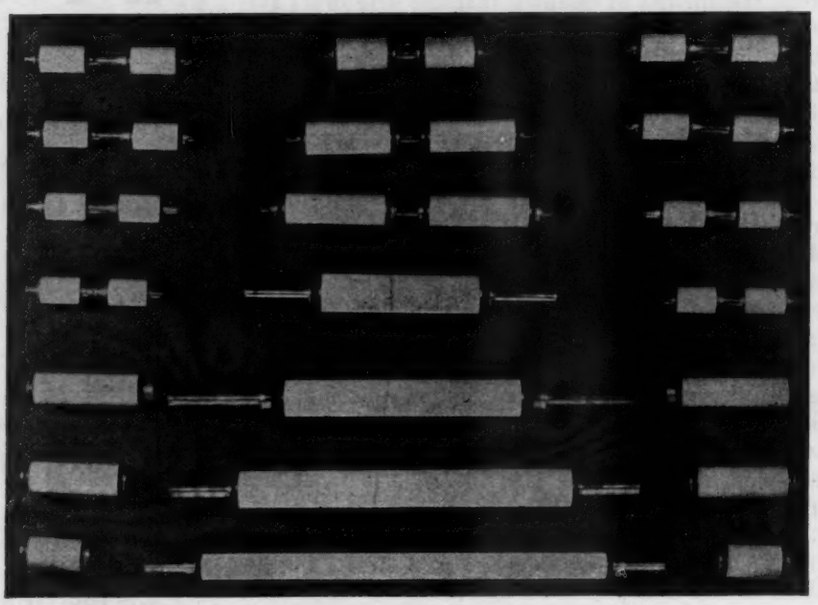

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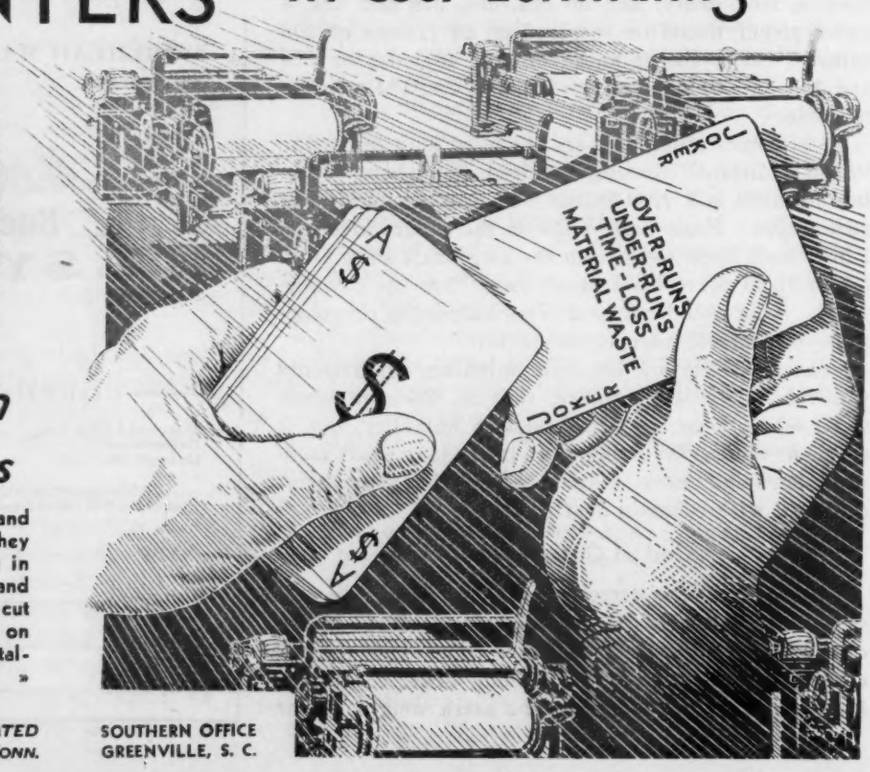


SOUTHERN OFFICE
GREENVILLE, S. C.

top rolls is one of the natural causes of this, and, too, he has mentioned the burring of rolls due to choking caused from top-roll laps. Still, he should consider the possible scoring of top rolls from the source of hard ends in the roving which are not attenuated even by long draft; the front rolls turn a greater number of times on this bad place than on the short drafting system.

Oiling Fly Frame Bolsters.

Turning now to OLD TIMER, page 63 of the December issue, and what he says about oiling fly frame bolsters. I once had an experience with oiled bolsters that I shall always remember.

While working as a section man on a rather large fly frame section, a slubber tender came and said to me, "I have a stuck spindle and I want you to take it out, unchoke the bolster, and re-set it so I can run it next doff".

I gathered up a wrench and a hammer and went to fix this little job. I asked, "Which frame is it on?" He answered, "Number One", and went with me and pointed to the spindle.

I touched the bolster and the thing was so hot it almost blistered my finger. I wanted to throw the hammer at him. But I held my temper and fixed the spindle.

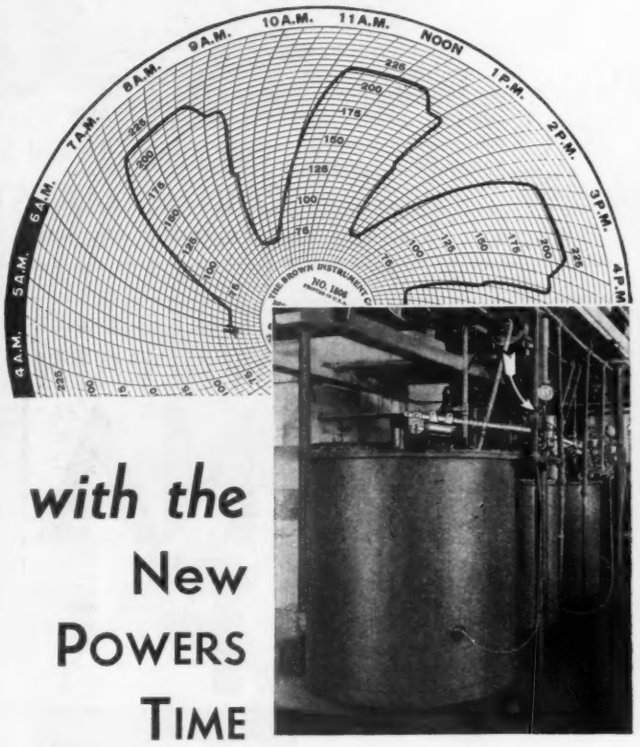
The situation was that the second hand was alert, and wanted every one of the spindles running in order to keep his costs low, but he required the bolsters to be oiled every morning. The operative had done this. While the frame was running an end had broken, and then the bobbin had not got its share of roving. Consequently, in order to keep from running a soft bobbin and having a baggy end on this frame, the tender broke this end back until the next doff. Later, another end had broken down and loose cotton began to fly. Soon some of this loose cotton lit on this spindle which had the oil on its stem; it clung, and when the next change was made at the top of the bobbins this cotton was then pulled down into the bolster, and there friction began to heat the bolster.

More might be added, but my personal opinion is that oiling bolsters is unnecessary, and secondly I think it is a menace, though I think the oiling of bobbin gears is a practice that should be carried out. Yet, I may be wrong, as when the bobbin gears get real dry, the ends are not as easily controlled in regard to tension.

OLD TIMER has mentioned twice to JIM the oily fly collecting in the bases of the roving bobibns where oiling bolsters was practiced. But does OLD TIMER think that the practice of oiling bobbin gears would cause this also? True it is that this is a real source of black places in yarn and cloth, still these defects have never been eliminated. A means for cleaning these bobbin bases is by a hose pipe connected onto the compressed air line, and the bobbins racked in a rack that will allow a thorough blowing of them, or a brush on a long spindle run slowly by a small motor; this brush on a spindle allows the bristles to be pushed into the bobbin and removes this oily waste. This can be done bi-weekly and the bobbins kept fairly clean.

Another method of reducing this fly that falls off

Get Temperature Charts *like this*



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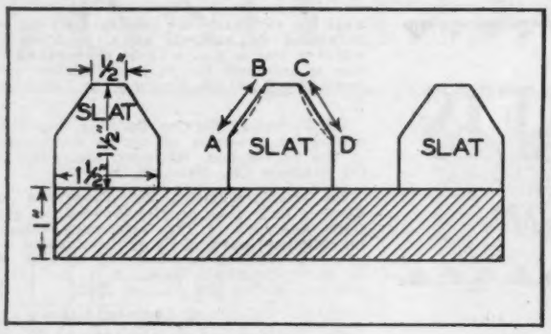


For bottom of roving truck

of the roving in the boxes and adheres to the other bobbins when they are placed in the box next time is to have a slatted bottom in the roving boxes. The cracks or openings between the slats could be an inch in width and this would allow this waste to fall on the floor instead of on the bottom of the box. A suggested form of these strips in the bottom of the box is shown in the accompanying sketch.

This type of bottom allows the waste to fall through, and using 1½-inch lumber will make the bottom strong enough to be durable. The end pieces may be used as a base for attaching the casters, and of course a center piece can be put on for placing the center wheels. This type of slat may be made on a rip saw, and a better one, with a slight arc from *A* to *B* and *C* to *D*, with a dado head, on an ordinary planing machine.

J. R. (GA.)

The Story of Old-Timer's Methods of Working and Management

(Continued from page 47.)

(I could have choked him.) *Now if you want to make your yarn stronger you must take each little thread and rub the bees-wax on it, like the cobbler does, and I suppose that would take up most of your time, would it not? You have quite a few of the little threads, haven't you?*

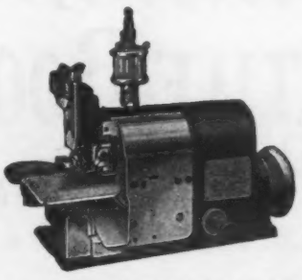
Good thing it was dark out on the porch so he could not see me. I could have bit a ten-penny nail in two, I was so blamed mad, and as I did not speak or answer his question about the little threads he started all over again.

I heard you all right, BOB, and many thanks, old man. Let's go to bed. I will have to get up early to get downtown and catch that 6:50 train.

Then he was kind enough to explain to me why bees-wax *in solution* could not add materially to the strength of the yarn. Wax—not bees-wax—is, however, a good ingredient to use in sizing, and most sizing manufacturers use it today.

(The next installment, which brings Jim back with questions like, "How much steam does a slasher take, Old-Timer?", will appear in an early issue. If you want reprints of the nine previous installments, let us know.—The Editor.)

The man who flies into a rage and cusses everybody out when something goes wrong will soon discover that he has got to fly into a rage every time he wants something done or his men won't know whether he really means what he is saying or not.



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92. Silicates of Soda—A review of the properties of silicates of soda and their various uses. Philadelphia Quartz Co., 121 S. Third St., Philadelphia, Pa.

93. Metso — Describing this industrial cleanser which has wide use in industrial cleaning of metals, floors, etc., and is used in kier boiling, silk and rayon degumming. Philadelphia Quartz Co., 121 S. Third St., Philadelphia, Pa.

94. New Development by Onyx—Eight-page booklet describing and giving uses of new developments in sulphonated aliphatic compounds . . . called Aliphatic Ester Sulphate and Glyceryl Sulphates. Onyx Oil & Chemical Co., 15 Exchange Place Jersey City, N. J.

95. Onyx Processing and Finishing Compound Catalog—A thirty-two page booklet listing and describing entire line of processing and finishing compounds, covering every process on all types of fabric. Onyx Oil & Chemical Co., 15 Exchange Place, Jersey City, N. J.

96. R. & H. Non-Flammable Solvents—describing the characteristics and many uses of non-flammable solvents. R. & H. Chemicals Dept., E. I. duPont de Nemours & Co., Wilmington, Del.

97. Suggestions For The Modern Silk and Rayon Throwster — describing the various uses for Laurel Brand Products and giving valuable suggestions in silk-soaking, degumming, dyeing, sizing and finishing. Laurel Soap Mfg. Co., Inc., Tioga, Thompson & Almond Sts., Philadelphia, Pa.

98. Saving Labor, Material and Power in the Textile Industry. A 20 page booklet showing the advantages and typical installations of temperature, pressure and humidity instruments and controllers in various processes of textile manufacturing. Foxboro Co., Foxboro, Mass.

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102. White and Light Shade Cotton Fabrics Dyeing and Finishing. National Oil Products Co., Harrison, N. J.

103. Throwing Rayon Crepe. National Oil Products Co., Harrison, N. J.

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2. Pepperell Equipment—10 page illustrated booklet showing High Speed Warping from cones as adopted by Pepperell Manufacturing Company after thorough experiments, installation and product photographs. Issued by Universal Winding Company, Boston, Mass.

4. New Methods of Opening Cotton, also "Brown" Automatic Mixing and Cleaning Distributor — Illustrated booklets showing advantages of Centrif-Air Cotton Cleaning System. Pamphlets also on better picking and carding and pneumatic trunk line cleaner. Issued by Centrif-Air Machine Company, Atlanta, Ga.

10. Leathers, Textile—Booklet No. 101, 48 pages. Illustrated. Showing BONDARON Check Straps—Lug Straps—Harness Straps—Pickers—Belting, both round and flat, etc. Horsepower tables and other interesting information. By Charles Bond Company, 617 Arch Street, Philadelphia, Pa.

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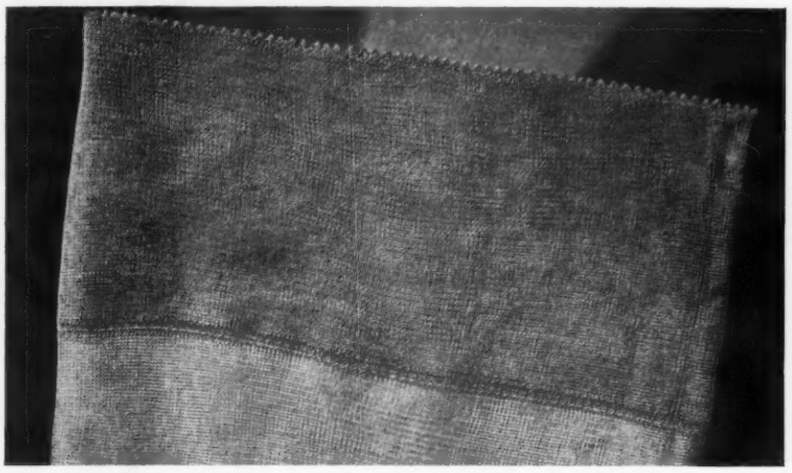

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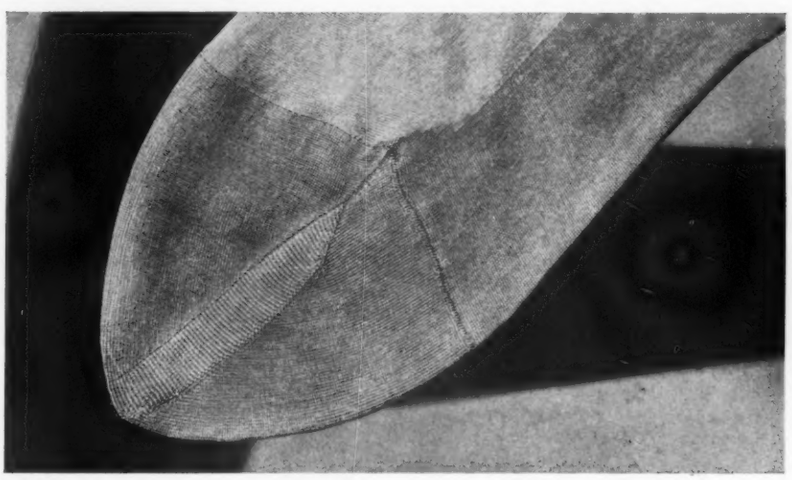

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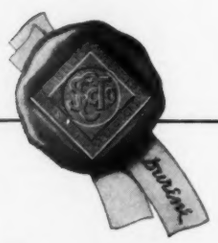

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A Study of the Machine Motions on Full-Fashioned Machines

By A. E. Parker
Educational Department, Ajax Hosiery Mills

IN this article Mr. Parker returns to our columns with an instructive discussion of the major motions involved in a full-fashioned knitting machine — together with practical comments in relation to the function and operation and adjustment of each . . . .

THE operations of the full-fashioned hosiery knitting machine can be divided into twelve motions, which correlate all parts and assemble them into clearly defined groups. Most of these motions originate from the cams on the cam-shaft.

1.—The Needle Bar.

On the 20-section Reading high speed machine there are nine needle bar cams. The reason for installing so many is to give a steady and more accurate motion of the needle bars. Each cam is provided with three adjustable cam bits which can be raised or lowered to change the motion at that particular point, and to compensate for any wear which is apt to take place at these points. These bits are placed on the regular cam which is in operation while knitting, and on the half of the cam which controls the up-and-down motion of the needle bars, the other half being circular and not subjected to much wear. These cams control only the vertical motion of the needle bars. Most all cams throughout the machine are in pairs fastened close together on the same cam boss—the right side for the knitting motion, the left for the narrowing operation.

2.—The Stitch Regulator.

The size of the stitches or loops is controlled by the stitch cam through the regulator shaft and needle bar rocker arms. The farther this shaft is rocked to the front, the closer it holds the needle bars to the sinker heads, thus making a larger stitch. There is only one regulation cam. This controls the horizontal position or the in-and-out motion of the needle bar, and it is only in action while the sinkers are making the corrugation of loops between the needles. This cam is a perfect circle holding the needle bar in a fixed position while the sinkers are making the loops. Then it is cut away allowing the presser cams to take control of the horizontal position of the needle bars. There is attached to this shaft a loose course cam lever, which is used to make a larger stitch when starting the set; and also the rocker lever, which is used to make a larger stitch where the re-inforced splicing is necessary.

3.—The Presser.

There are six sets of presser cams, three cams to each unit. The cams in the middle control the horizontal motion of the needles. After the course is made and the catch bar is coming forward, the presser cams go into control of the horizontal or in-and-out motion of the needle bars, taking the needles up to the presser and closing the beards, then moving to the front while the stitches drop off the sinkers and dividers, then pushing the needles in again near the sinker head while the needles are coming up and the sinkers are holding the fabric down on the stem of the needles.

During the narrowing or transferring of the stitches, the cam on the left controls the horizontal movement of the needles, which is an altogether different motion from that which it follows when knitting fabric.

The cam on the right is the idler cam and is used only in exceptional cases where it is necessary to make one course without any carriers going across and still retain the fabric on the needles. This cam does not close the needle beards but allows the stitches to remain on the stems of the needles.

4.—The Knock-over Bits.

There are four sets of knock-over bit cams, three to each unit. As it is necessary when starting a set to have space to insert the welt bar between the knock-over bits and the bottom of the sinkers and dividers to catch the first row of loops, the lowest cam in the middle is used until a few courses are knit and the welt hooks get clear of the sinkers. Then the highest cam is used for the welt which is always knit with larger loops than any other part of the stocking.

As the needles always go down to the same depth, the high knock-over bit cams hold the old loops higher, allowing the needles to pull the larger loops clear. After the welts are turned, the stitch is made smaller for the leg portion and there is less knock-over required. The smaller cam is used from the welt to the end of the set, since too much pull on the loops at this point would cut the fabric.

5.—The Narrowing.

Keep in mind where cams are in pairs that the right side is the knitting side and the left the narrowing. The right side of each of the narrowing machine cams is a perfect circle, allowing the narrowing machine to remain in a fixed position while knitting. The left side is used when the machine goes into the narrowing motion, and controls the vertical motion. This narrowing machine has nothing to do with the

formation of the stitches but is used only to narrow the fabric and to transfer the stitches from one needle to another as in the picot or lace work.

When the narrowing machine goes down in the narrowing operation, it does not go straight down but describes an arc due to its swing on the back narrowing machine shaft. At the points go down to take the stitches off the needles, the presser cams move the needle bars in to meet the points. When the narrowing machine reaches the proper height so that the points and needle beards will fit into each other, the narrowing machine rests there an instant, while the presser cams press the beards and heads of the needles into the groove of the points. They then go down together. As they go down, the knock-over bits hold the fabric up, thereby pushing the stitches off the needles onto the points. The needle bar then moves about one-eighth inch away from the points as they start on their upward motion again. The catch bar pulls the sinkers and dividers back and as soon as the points are clear of the knock-over bits, the narrowing points move in two needles, then go down again, the needles following at the same time but with a slower motion. When the needles are just below the top of the knock-over bits and the narrowing points are deep enough and at the right position for the needle beards to fit into the points, the narrowing machine rests in this position while the presser cams press the needles into the grooves of the points. They then come up together, the catch bar moving the sinkers and dividers forward and holding the stitches down, thereby transferring the stitches off the points onto the needles again. As soon as the stitches are pushed clear of the points, the needles move away from the points allowing them to clear each other on their upward travel ready for the next course.

As this transferring of the stitches takes only the same length of time as the knitting of one course (one revolution of the cam shaft, or less than one second), you can readily see why so many catch bar and needle bar cams are necessary to give them a steady and accurate motion, and why the proper alignment of needles, points, sinkers, dividers and knock-over bits is necessary for the machine to function properly.

6.—The Catch Bar.

In the knitting operation, all the movements of the catch bar are made after the slur-cocks have pushed the sinkers forward and are beginning their movement across on the next course.

In the narrowing operation, the movements of the catch bar are almost continuous. The back catch bar cams control the horizontal motion, pushing the sinkers in and out. The front catch bar cams lower the catch bar when it comes forward at the end of the course to engage the sinkers, raising to release them again when the slur-cocks are beginning their next course across. The timing of the back catch bar with the needle bar movement is very important from the time that the catch bar engages the sinkers until the loops drop off the tips of the sinkers and dividers. The loops must be held under a slight pressure to make clear fabric. If there is not enough pressure, sleazy work will be the result. Too much pressure will cause cuts in the fabric. Also attached to the front catch bar shaft is the control for the striking-jack springs. When the catch bar is raised to allow for the movement of the sinkers as the slur-cocks are making the course across, the same movement applies pressure on the springs, thus preventing rebound of the sinkers. And at the end of the course across as the catch bar is lowered to grab the sinkers, the lowering of the catch bar releases the pressure on the springs, allowing free movement of the sinkers by the catch bar.

7.—The Coulier Motion.

The small gear on the cam shaft makes one revolution to one half of the large double gear on the coulier shaft, giving the slur-cocks and friction boxes one course across to each revolution of the cam shaft. The coulier cam is so designed as to give a steady and even speed to the slur-cocks in their travel across when pushing the striking-jacks forward, to slow up its motion after all the sinkers are pushed forward, and to continue its push until the sinkers are pulled back ready for its movement in the opposite direction. In this manner, it holds the carriers against the end stops. The rollers are set as close to the cam as possible without binding when on the largest part of the cam, and are provided with a re-inforcing bar which fits over the roller stud nuts to prevent them from spreading. Should these rollers spread or the cams become worn through lack of proper lubrication, a jerky motion in the slur-cock and carriers would result.

8 and 9.—The Carriers and Friction.

The backward and forward movement of the carriers is brought about by the friction boxes which are part of the coulier motion. The distance these carrier rods are moved is governed by the position of the carrier stops. When the machine is knitting on the full width of the sinker head, the carriers have a lead on the sinkers of 1⅝ inches. As the carriers narrow in during the leg narrowings, the lead of the carriers would increase in proportion unless some provision were made to correct this. An arresting lever is provided, mounted on the narrowing head, and released by a dog mounted on the plating bar which controls the lead of the carriers, retaining the 1⅝-inch lead through the narrow portion of the stocking.

10.—The Shock Absorbers.

On the high speed machines, the sharp blow of the carrier rods on the stops would cause the carriers to rebound, and this would break needles and sinkers, unless a lot of pressure were used on the friction boxes. Since this pressure would in turn cause strain on the coulier motion, the shock absorbers are provided for this purpose, one for each end.

The bracket and lever are mounted on the base of the carrier rod narrowing head nut. The guide base or cam is fastened on the plating bar, with the connecting rods running close to and parallel with the friction box shaft and the stop collars near the friction boxes.

As the shock absorber attachment is mounted on

the same unit as the carrier stops, their relative positions are always the same, regardless of whether the machine is knitting on the full width or after the leg narrowings. When the carriers are going across from left to right, the cam on the slur bar at the right end of the machine pushes this shock absorber up, which in turn pushes the rod with the stop collar attached in to the left to meet the friction box. At this point, both friction box and shock absorber are going in opposite directions. When they are about one inch from each other, the cam on the plating bar has reached its highest point, and starts on the downward curve, reversing the motion of the shock absorber which begins to travel in the same direction as the friction box, at only half the speed, however.

When the friction box catches up and the stop lever makes contact with the stop collar on the shock absorber rod, this contact holds the friction box back to half its original speed and reduces the lead of the carriers in the last two inches of its travel from 1⅝-inch to ¾-inch. This reducing of speed absorbs the shock when the carrier hits the stop. When the carriers are going in the opposite direction, the shock absorber at the other end is in operation.

When the shock absorber attachments are properly adjusted, and the machine is running in high speed or about 65 courses per minute, no jump is noticed in the carriers when they make contact with the shock absorbers. Should the knitter when changing carriers from the flare top to the leg carrier push his carrier in and lock the friction and then start up, this would give the carrier a decided kick as the friction box and the stop collar would come together while traveling in opposite directions. The stop collar would push the friction box back until it had reached the end of its stroke; then they would follow on together in the usual manner. This sudden stop and excess strain would most likely put the shock absorber out of adjustment. The proper way is to push in the carriers, turn the machine until the sinkers are 1½-inch from the carriers, and lock the friction. The shock absorbers will then work in their normal manner.

11.—The Pointex.

The pointex rack is fastened onto the center bed at sections one and two. Its purpose is to give a wider range of designs in the re-enforced splicing either in making pointex or French heels, and the various fancy and shadow clocks. It has the additional advantage of automatic control of the rocker motion.

The operation of the pointex rack is controlled by special buttons on the regular narrowing chain. This rack works only when the machine is in the knitting operation and not in the process of narrowing. In making fancy designs in the high splicing, the use of the large button allows the carriers to move four needles wider, two needles each way; the small button narrows it in the same manner. The buttons are arranged on the chain according to some predetermined design. In most instances extra buttons are put on the chain so that after the set is finished the buttons will automatically adjust the pointex rack ready for the next set.

12—Plating the Splicing.

If we were using the same kind of silk in the splicing as was used in the leg, plating would not be necessary. As two different lots of silk, however, are apt to take a different shade in the process of dyeing, proper plating is essential or streaks and mottled effects will show on the face of the fabric. This is especially true when cotton is used in the splicing. If the splicing carriers were just put in and no provision made for governing their travel, the splicing carrier would start to go across at the same time as the main carrier. This would cause the carriers to lay the thread on the nose of the sinkers at various angles according to the width of the splicing and the direction in which the slur-cocks were going, sometimes laying the thread on the top of the main silk and at other times underneath.

To do good plating, it is necessary to have absolute control of the splicing carriers, and to be able to adjust them to a very fine degree. This is done by retarding the lead of the splicing carriers. The retarding lever is mounted on the carrier rod narrowing nut which holds the splicing carriers stationary until the proper time for their release.

When the slur-cocks in their movement across have pushed the sinkers forward in the formation of the loop to a point ⅝ inch from the splicing carriers, the dog on the plating bar releases the retarding lever, allowing the carrier to move across and retain this ⅝ inch lead in front of the sinkers, placing the splicing thread on the sinkers in front of the main silk and next to the needles, thereby keeping all the splicing thread on the inside of the stocking.

Due to the fact that the splicing carriers have such a short lead in front of the sinkers, the machine must be run on low speed while plating, or about 35 courses per minute. The shock absorbers are not necessary while in low speed, so they are also taken out of action at this time.

Proper Lubrication of All Parts Is Absolutely Essential

Proper lubrication of the machine is absolutely necessary and it is the knitter's duty to see that it is done. Too much attention cannot be given to friction leathers. Glazed and tight frictions cause excessive strain on the coulier motion. Plenty of light machine oil should be kept in the coulier can so that the can will dip in the oil at each revolution of the machine. The surplus oil will run back into the pan and all dirt and grit will settle at the bottom. The oil should be changed about every three months in order to prevent wear on the coulier cam.

Of all the shafts mentioned I believe that the back catch bar shaft requires the most careful attention. As different methods are used in humidifying the silk, some of which cause a drip from the humidifying boxes and tension rings. This leaks down and into the bearings, causing rust to set in and tight bearings are the result.

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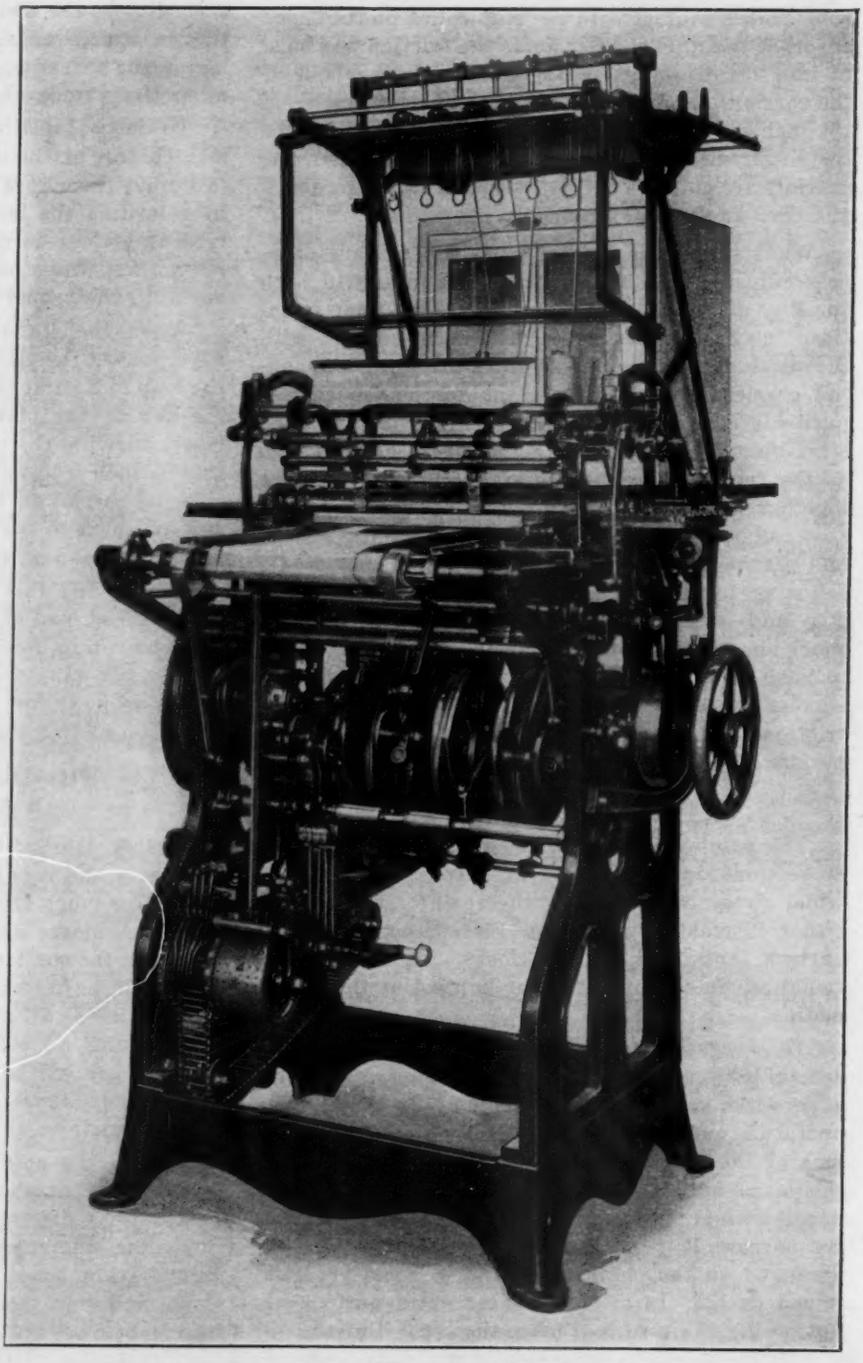

Simple Tests for Soaps and Chemicals

EDITOR COTTON:

The questions of "CONTRIBUTOR NO. 6130" asking for simple soap and chemical test methods seem to be very timely, for judging by the literature, methods for the testing of soaps and oils and related compounds are receiving very considerable thought just now. The most common method of mill-testing these materials is of course the analysis of the materials themselves. The suggestion that the scouring or finishing bath itself be analyzed, rather than the individual ingredients, is thought-provoking. No doubt many mill men are using variations of this idea but as a regular scheme of analysis it offers interesting possibilities, especially in determining the relative money value of different compounds.

The simplest analysis of soap would have to include the determination of the moisture, total fat, and combined alkali; this last of course would be equivalent to the total alkali, in a neutral soap. Free alkali in soap may be determined qualitatively by moistening a freshly cut section of the soap with alcoholic phenolpthalein solution—a pink coloration indicates free caustic. To calculate the moisture weigh out 3 to 5 grams of the soap, being sure to obtain a representative sample. Dry in an oven at 220 degrees F. until no further loss in weight is noted; this may take several hours. An electric hot plate will give fairly good results if an oven is not available, precautions being taken to avoid overheating. The loss in weight divided by the weight of the original sample gives the percentage of moisture present. The total fat is determined by acid separation and extraction, being based on the fact that soaps will break down, yielding their free fatty acid, on treatment with mineral acid. The simple and familiar ether extraction method is best for the gravimetric determination of the fatty matter after the treatment with acid. Total alkali may be calculated by titrating a weighed portion of the sample (in water solution) with half normal H_2SO_4 using methyl orange as indicator. These three simple tests will give a good idea of the value of a pure soap; however, in some cases it may be necessary to test for soda ash, silicate, free caustic, and occasionally rosin. For these determinations reference should be made to the literature.

For a general and accurate system of analysis if sulphonated oils, consult the proposed standard methods for grading sulphonated oils as suggested by the U. S. Bureau of Standards and published in several of the trade journals. For a simple analysis the same factors as listed for soap should be determined and a similar procedure may be followed. In calculating the moisture care must be taken in the early stages of drying to prevent spattering—slow heating or agitation will serve. A simple method for roughly determining the strength of a sulphonated oil is the generally familiar "mill test". About 50 cc of the sample in a 100 cc graduated cylinder is acidified with dilute sulphuric acid. The graduate is well shaken and allowed to stand for several hours. The upper fatty layer may then be read off directly; and the percentage of fat easily figured. Good comparative results require that each sample considered be given an identical procedure.

Some of the solvent and penetrant compounds may call for a little more extensive work. Pine oil is determined easily by simple distillation, and other solvents not miscible with water may be similarly determined provided they do not have too high a boiling point. Alcohol and acetone in water can be approximated by determining the specific gravity of the distillate and referring to specific gravity tables of these solvents. If cresol is present, it will show with the fatty matter in the acid separation test. However, if a weighed sample is thrice evaporated to dryness with 50 cc additions of water, the cresol is driven off and the fat may be determined in the residue. Then the cresol content can be calculated by difference.

If the amount of oil, wax, and dirt which must be removed in a scouring operation can be accurately predetermined, then the scouring bath may be accurately gauged beforehand and the necessary scouring agents estimated. This will of course also afford a means of determining the efficiency of different agents by observing their relative emulsifying or solutizing effect on the matter to be removed in the boil off. A great advantage, of course, is that this determination may be made before the scouring operation takes place. The idea of the systematic analysis of the scouring or finishing bath is right in line with the modern practice of holding every succeeding bath in wet finishing to the same pH, after the optimum pH for any one operation has been determined.

CONTRIBUTOR NO. 6204.

YARNS

A STORY IN ITSELF

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A Discussion of the Parts of Scott & Williams Knitting Machines.

Plates X, XI, and XII

(This continues the series of short articles discussing the machine parts on Scott & Williams machines, by taking up in order the various plates in the manufacturer's catalog with which all men using this make of machine are familiar.

The first article, on page 126 of the October issue, covered Plate I, Plate II, and Plate III; and the second article, on page 86 of the November issue, covered Plate IV. The third article on page 97 of the December issue, took up the parts shown on Plate V. The fourth article, on page 94 of the January issue, covered Plates VI, VII and VIII. The fifth article, on page 101 of the February issue, covered Plate IX.

It is suggested that in reading these discussions, the reader turn to the plate in question in the catalog and refer to it while reading the comments found in these articles. Furthermore, it will be a good idea to clip these discussions and file them in the catalog along with the plates to which they refer.

The numbers in parentheses following the names of parts are the same numbers used by the manufacturers in referring to the parts in the catalog.—The Editor.)

EDITOR COTTON:

Plate X—Chain Links.

Chain links, like many other parts of a knitting machine, will eventually wear out. One of the most common things causing chain links with lugs to wear out prematurely is a badly worn pawl lifter plate (8012). A simple adjustment was described in the discussion of the parts on Plate IV (page 86, November 1932 issue) which will prevent pawl lifter plates from wearing rapidly, and this same adjustment will also reduce the wear on chain links to a minimum.

Machine troubles caused by worn chain links are not difficult to overcome and are usually caused by the lug links rather than the plain links (15900). With a tension spring holding the pawl lifter plate (8012) down on the plain links, and thousands of links passing under the plate, an oval-shaped groove with sharp edges on all sides is being slowly but surely cut into the lifter plate. It is these sharp edges that cut up the lug links, for the plate (8012) is hard tool steel and the links are soft malleable iron and will therefore wear out quickly. The higher lug links especially are subject to wear due to the tension of the lifter spring being greater on a high link than a low or plain link. Machine trouble, seconds, waste, loss of time and production, can be reduced if the machine fixer will inspect chain links occasionally and replace worn links before they give trouble.

At times trouble will develop when the wrong kind of link is accidentally used, for instance, using a (5621) in place of a (6184); they are very much alike, yet one is 1/16-inch higher on the second step than the other.

Frequently, in building chains when changes are made, links will be found on which the hook on the front of one link will not readily pass over the groove on the rear of another. Usually the apprentice who does this kind of work will use a hammer to drive the links together, and very often cause the links to crack in the hook; then when the complete chain is put on the machine, it will break apart, and do some damage in one form or another.

Fashion mark links (5649, 5650, 5651) used on Model K or plain women's hose (B-5) machines, will give trouble at times. It is necessary to grind the hooks of these links off on one side in order to get them together, and frequently too much is ground off, causing side play which allows the links to follow each other in a zig-zag formation and causes them to "run off" of a small sprocket on the chain rack and fall to the floor.

It is very important to keep accurate chain link records, using catalog link numbers, when making up samples and getting up new styles. I will relate an incident in this connection to illustrate this point. I had changed jobs, and after a few days getting acquainted, the superintendent asked to have a line of machines changed to a certain style, the samples having been made some months previously. Handing me a sheet of paper, the superintendent said, "Here is the construction record of that new style we must make. This number is somewhat different from those we are now running, and I have not been able to find a sample of it, *but* I'm sure you will find all of the necessary information on this sheet."

With the sheet in hand, I started for the knitting room. The number was a ladies' hose, made on a Model K machine. The diameter of the machine, gauge and number of needles were specified, the various yarns to be used were shown by count, kind, number of ends, etc.—everything was in perfect order except the pattern record, and what a mess it was! The man who made the original sample recorded all of the lug links as High, Medium, Low, Two-kick, Three-kick, etc. He did show a certain number of plain links (15900) but as for the rest it was impossible to tell which links were used. The change was made and the sample duplicated to the satisfaction of the superintendent, but how much easier it would have been if catalog link numbers had been used instead of a lot of nick-names. Proper chain link records will avoid much confusion, save a great deal of time, and assure correct duplication of samples.

Plate XI—Universal Web Take-Up.

This attachment is used in making what is usually termed string work ladies' hose, misses' hose and other numbers. The parts shown on Plate XI are not complicated and should give very little trouble under normal conditions. The complete web take-up is driven by two drive pins (6638) which are located on the gear ring (5933, shown on Plate XIV) and fit into the slots in top of the clutch (6091). The clutch screws (15348) must be kept tight to avoid elongation of the screw holes in the top of the tube, the same being true of the clamp screws (15589) used on the lower end of the tube. Failure to do this will mean broken tubes on either end.

The web take-up roll shafts (6701, 6702) must turn freely. Frequently loose threads will accumulate around the shafts and at the ends of the take-up rolls (6697, 6697-Y) causing them to turn hard, which will prevent them from pulling the work down, and cause the machine to load up, break needles and make waste.

The pawl slide (7407) operated by the actuating cam (7102) and spring (6715) supplies the motion to

turn the take-up rolls. This is accomplished by means of the two driving pawls (7297-S, 7297-L) and the take-up ratchet (6703). Adjustments can be made to move the take-up rolls a given amount at each revolution of the take-up unit so as to pull down the hose as fast as they are being knit.

Care must be taken in timing the take-up unit with the cylinder. It must be placed so that the slide (7407) will not pass over the actuating cam (7102) while the machine is reciprocating to make the heel and toe. A small amount of cup grease or vaseline is the best lubricant for the actuating cam (7102) and the top of the slide (7407). Lighter oil is best for the roll shafts and driving pawls. It should be used sparingly for any surplus will drip into the take-up bottom (6696) and soil the hose.

The corduroy covering on the roll (6697-Y) should be renewed when it becomes smooth. More or less tension on the take-up rolls can be gotten by means of the take-up roll adjusting screws (6707). Heavy oil is a good lubricant for the base studs (6694, 6695) and ball bearing (15611). The holder bracket (6006) should be fastened securely to the machine base, as serious damage will result should it suddenly get loose while the machine is running, especially while it is reciprocating.

Plate XII—The Transfer Ring.

Very few changes have been made in the construction of this simple, yet indispensable accessory of the knitter turn out good work he will keep the needles invented. As a rule transfer rings are subject to much abuse by knitters and fixers through carelessness. If the fixer is at all interested in helping the knitter turn out good work he will keep the needles in his machines and the points in the transfer rings in A-1 shape. This can best be accomplished by going over a given number of machines and rings at regular intervals, and not waiting until an operator has a high percentage of seconds and menders. I have mentioned straight needles in connection with transfer rings because the condition of the needles has a direct bearing on the transfer rings and vice versa.

Operators as a rule are not as careful with their transfer rings as they could be. Among the most common forms of transfer abuse are turning the machine with the transfer resting on the needles, and pressing the transfer down before *all* the needles are properly engaged in the transfer points. In either case needles, sinkers and points are sure to be damaged. Every operator should be taught to place the transfer on the needles perfectly before pressing it down, and should realize that nothing is gained by revolving the machine with the transfer on the needles, but that rather some time is being lost.

A sure sign of something needing attention is to see an operator constantly picking up dropped stitches each time a top is transferred. At least five to six perfect transfers should be made in a row by a fair operator and a good operator has little need for a pick-up hook if her equipment is in good shape.

A transfer knitter's work can be made very disagreeable and difficult by not supplying tops with a good topping line all the way around. Too large a line is just as bad as too small a line, as far as the topper is concerned. Toppers usually prefer the open transfer handle (5863) and holder (5742) rather than the closed handle (5906) and holder pin (1424).

The Yarn Oiler.

To derive any benefit from the yarn oiler the glass (6724) must be kept filled with a good stainless oil. The wick should be renewed when it becomes badly cut up by the yarn constantly dragging over it, as the trench cut by the yarn dragging will soon become large and keep the yarn from taking oil. The wick arm (6723) can be adjusted up or down to make the yarn take more or less oil as desired. As a rule yarn oilers get very little attention and the supply of oil kept in the glass is nil.

The next discussion will cover the parts shown on Plate XIII.

CONTRIBUTOR NO. 6038.

Preventing Accumulation of Odds in Finishing Department

EDITOR COTTON:

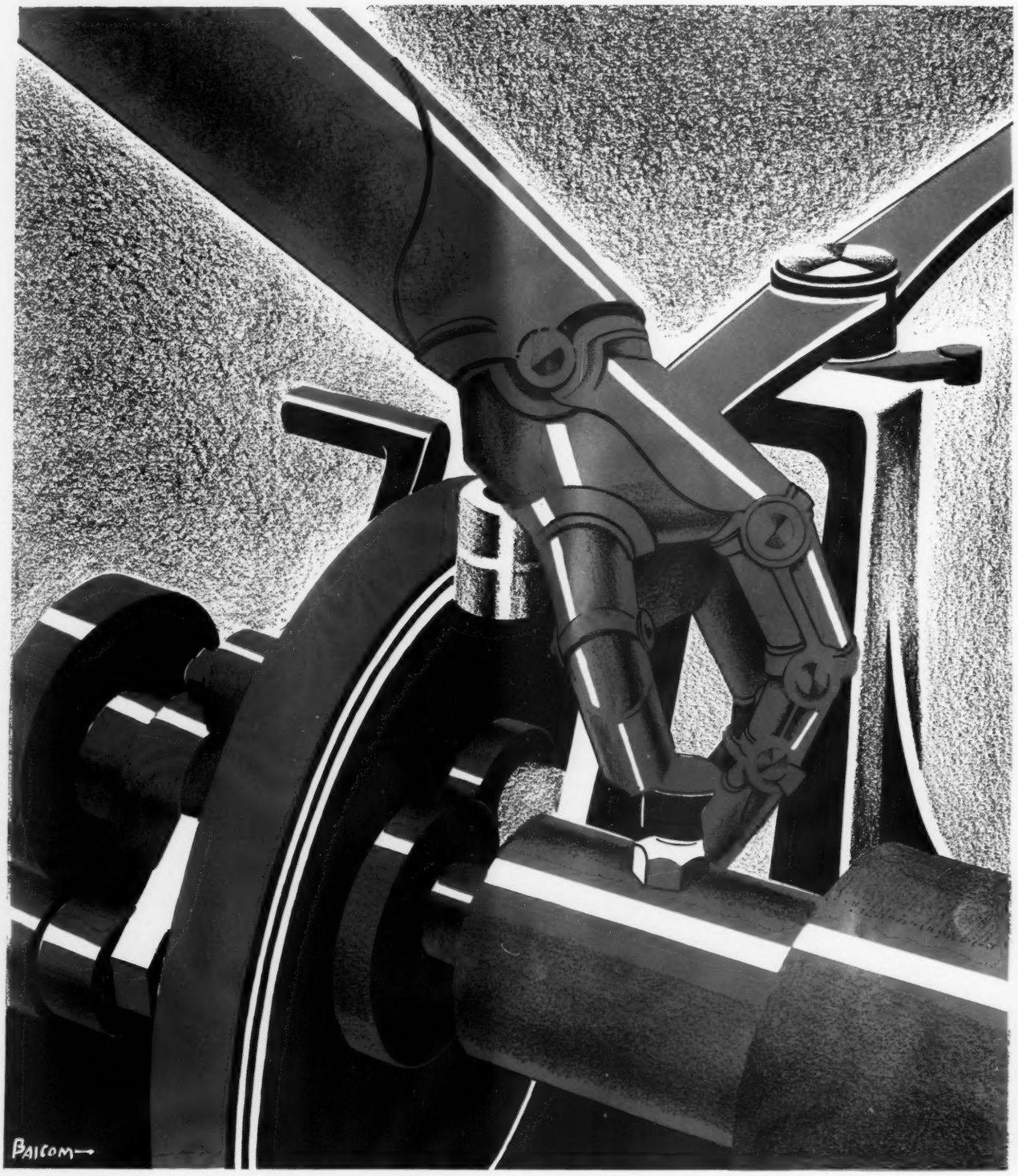
What is the best way of reducing the amount of odds accumulating in the finishing department, in manufacturing men's fancy spiral half-hose—this question was asked for "CONTRIBUTOR NO. 6140" in a recent issue of COTTON. May I submit a reply?

This problem is as old as the industry itself, and has steadily grown worse, especially since the advent of numerous kinds of rayon, which brought about the great multiplicity of styles, patterns, color combinations, etc., in men's fancy hosiery.

The following plan, worked out by the writer after many years of experimenting, is being used by a mill producing from 25,000 to 30,000 dozen pairs per week of men's fancy half-hose, in from 25 to 30 different styles, in both ingrain and dip-dyed hosiery. The plan works equally well on both.

The first source of odds accumulating in the finishing department is "Re-Boards" and "Re-Dyes." These are thrown out by the inspector-pairers, marked with the correct size, style, color, etc., and are returned once daily to the dyehouse, and distributed there in small bins, built in for this purpose—thereby keeping each style, size and color separate until ready to be re-dyed and finished. When a dyeing is being made of a certain style, size and color, the man tending the dye machines is required to look over the bins and determine whether he has any of this style, size and color to be re-dyed and re-worked and adds such goods about 10 minutes before the bath is drawn off. This length of time is to be determined by the condition of the goods to be re-dyed, etc. This time will necessarily have to be governed by the dyer, as some colors and some conditions require longer or shorter runs in the dye bath, to restore them to the desired shade.

In addition to the odds just mentioned, the pairer invariably finds an accumulation of odd "firsts" and seconds that will not "mate" after finishing her lot. These are stacked neatly on boards, as accumulated, and once daily the defective pairs thrown out by the



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In knitted merchandise, quality ends in orders, but it *begins* as far back as the needles. An overwhelming preference for Torringtons, among knitters whose standards are rigorous, is worth noting. The "company they keep" proves that these dependable, uniform needles are doing a good job.

TORRINGTON *Latch* NEEDLES

folders are collected and combined with these goods. Then semi-weekly, or more often if necessary, a girl trained for this work goes through the whole lot, separates, inspects and pairs these goods, and places each grade, style and color in the proper stock racks. Menders' work, after it has been mended, is handled in the same manner.

The girl or girls filling these positions should be the very best and most efficient in the whole finishing department, as good judgment, perfect eyesight, and an abundance of patience are very necessary if the plan is to be successful.

In shipping seconds and thirds it is almost always possible to include in with the same order two or more styles of the same price and construction, thereby cutting down on the finished stock. As a rule this is highly desirable from the customer's standpoint also as it gives him a wider range of patterns and colors in the same case.

It should be understood that this letter does not deal with the matter of excess stock accumulating in the finishing department, goods being manufactured out of line and out of proportion to orders, but merely deals with unnecessary odds piling up in this department.

We believe that if "CONTRIBUTOR NO. 6140" will adopt this plan and select his operatives carefully, and train them properly, he will find that the result will be a clean, orderly finishing department with a place for everything and everything in its proper place, which, as I understand the matter, is the object he desires.

CONTRIBUTOR NO. 6182.

Needle Consumption, Etc., on Full-Fashioned Chiffons

EDITOR COTTON:

You published on page 98 of your December issue a letter from "CONTRIBUTOR NO. 6147," answering an inquiry as to the cost per dozen hose knit (full-fashioned) of various supplies, etc. This man gave a total cost of eight cents per dozen on all parts listed by your inquirer, which included needles, sinkers, points, machinery parts and repairs, and factory supplies. This man in the December issue also said that he considered an average needle breakage of one needle per dozen to be very good, and two needles per dozen not totally bad.

His information interested me, and I checked up on our own figures, which I am pleased to contribute herewith. Our costs on these various items are approximately as follows:

Needles	.02	per dozen hose
Sinkers	.009	per dozen hose
Points	.008	per dozen hose
Machinery parts and repairs	.048	per dozen hose
Factory supplies	.0250	per dozen hose

I wish to advise that we are running almost one hundred per cent on chiffons, using 42-gauge machines, half of which are high speed and half of which are slow speed. I would be very much interested in having similar figures from other mills.

CONTRIBUTOR NO. 6183.

Soap Versus Oil for Degumming

EDITOR COTTON:

I am writing to discuss the inquiry of "CONTRIBUTOR NO. 6088" on the subject of degumming silk hosiery with olive soap.

I would say that some dyers are prejudiced in favor of olive oil soap for de-gumming hosiery, and I have no objection to such prejudices or preferences, but I do think that such prejudices and preferences are the only reasons for using olive oil soap or soap of any kind for de-gumming silk hosiery. I understand that soap, one kind or another, has been largely used in de-gumming silk thread for producing boiled-off silk. I doubt if soap can be improved on for such purposes, especially where some straight olive oil or neatsfoot oil is used in connection with the soap. Neither do I condemn the use of soap and oil for the two-bath method of de-gumming and dyeing silk hosiery. On the other hand, I think the dyer who is still working with these products is spending a lot of unnecessary time and money and turning out poorer finished goods than he would have if he would satisfactorily work out the one-bath method.

Your inquirer states in his letter, in the July number, that on account of a tendency toward chiffon weight goods and a proper finish, that dyeing methods are turning toward dyeing in the de-gumming bath and leaving some of the gum on the silk as a sizing or body builder. I object to this statement, as there is no middle ground insofar as degumming a silk stocking is concerned. It is either de-gummed or it is not de-gummed, and if not degummed fully it will never have a satisfactory finish. If any portion of the gum is left in any part of the stocking the fabric will be stiff and stitches distorted at such places, giving the stocking a condition of correct finish at one place and incorrect finish at another. It is admitted, however, that in the single bath process of dyeing, the gum can be taken off uniformly and a certain amount re-deposited during the dyeing process, which will have some filling effect on the fabric and produce a better finish.

From the standpoint of finish and feel, where formulae have been thoroughly established and the dyeing operation can be completed in a minimum time, a soap bath can be used just as successfully in the single bath method as a de-gumming oil bath. The objection to the soap bath lies in the fact that the soap produces entirely too much suds, overruns the dye machines and keeps a sloppy unsightly condition around the machines, and also has a tendency to float out some of the dyestuffs which are held in suspension in the dye bath before being deposited on the goods. Again, if the correct shade is not established in the minimum time for dyeing and degumming, the soap bath has a much more hardening tendency on the goods for the additional time required to make additions to dyestuff and bring the shade up to a satisfactory standard. This causes chafing of the goods and results in broken fibers of silk and a nappy appearance on the finished goods.

CONTROLLED DISTRIBUTION in Rayon Yarns is not new with us

A SELECT number of mills manufacturing a comprehensive line of woven and knitted fabrics are constantly using the superb Enka rayon yarns. The leading weavers and knitters want more than good yarns at the market price . . . they want service and cooperation. We rarely disappoint our customers in the fulfilment of their requirements. **It's Not How Many We Serve But How Well We Serve Them.**

Although our production facilities have been constantly enlarged, in the past six months we have run continuously at capacity and distributed Enka yarns efficiently through controlled channels. We will not take an order or promise a shipment unless we have every reason to believe we can carry through. Having been mill men ourselves, we realize the disaster of interrupted weaving or knitting from whatever cause it may come.

Enka yarns will be found in the fabrics of the leading mills and progressive converters, fashioned by the best cutters and sold by the key stores. Watch the pages of the trade press.

Once an Enka customer . . . always an Enka customer.

AMERICAN ENKA CORPORATION
271 Church Street, New York
Asheville, N. C. • Providence, R. I.

These conditions are not so with a satisfactory de-gumming oil, and a batch of goods may be operated three times as long in an oil de-gumming bath as in a soap bath and still come out smooth in appearance, as the oil acts much better as a lubricant on the fibers than soap.

It is not to be expected that all dyers will subscribe to any one practice or any one type of de-gumming compound. In fact, it is far from advisable that they should do so. Different types of dyeing machines employed in different dyehouses make it necessary to use different de-gumming agencies, and different conditions of water make it imperative to use different de-gumming agencies. But we do not believe there are local conditions anywhere of such a nature that a satisfactory de-gumming oil cannot be found for dyeing and de-gumming in one operation all types of hosiery, regardless of gauge or construction. And we do believe that the dyer who will take time to develop a satisfactory de-gumming oil and satisfactory dyestuffs to work with same will find that he can effect much saving in time, labor, water and steam, and have a more satisfactory all-around finish on all of his goods than he will have from the two-bath soap de-gumming method. CONTRIBUTOR No. 6128.

Figures on Seamer Production and Needle Breakage

EDITOR COTTON:

In reply to the inquiry of "CONTRIBUTOR No. 6185" with reference to full-fashioned seaming production on the Union Special seamer, will say that our average production on both 7-thread and 4-thread is 35 dozen per day of 10 hours.

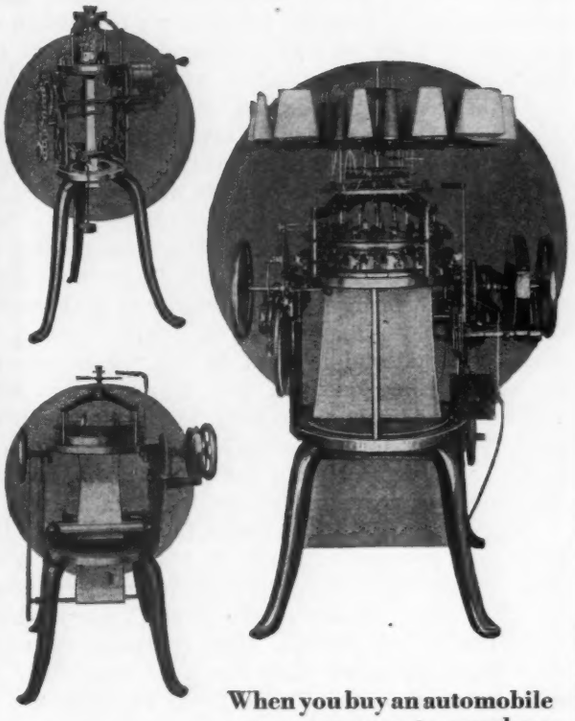
We find it a better plan to allot the 7-thread to a certain group of machines, and the 4-thread to another group, as changing a girl from a light weight to a heavy weight, or the reverse, has a tendency to retard her production for the day she changes. We find that in this way a girl accustomed to 4-thread work will do as many dozen as she would do when accustomed to 7-thread of the same gauge.

The amount of needle breakage on these machines depends much on the set-up of the machine and the condition of the goods. Many needles are broken by bad selvages, and crooked knitting—one side of the stocking being knit much tighter than the other, the operator is forced to put more tension on the short side to match the two edges. Another quite important hazard is caused by the topper not topping the heel tabs to fit the looper loose courses on the last stand point and makes the heel looper line match up with the sole selvage. The same thing applies to the looper overlapping too many stitches in closing the toe. There are probably more seamer needles broken at these two points than all other parts of the stocking.

The quality of the seaming thread also plays an important part in the needle breakage. The efficiency of the transmitter brake should be set so the machine will stop at any emergency.

We are seaming approximately 40,000 dozen per month, and our seamer needle breakage is a little less than 200 needles per month. CONTRIBUTOR No. 6189.

MODERNIZE *your* PLANT *with* BRINTONS



Ribbers of every type.

Jersey Machines Plain and Fancy Stitches.

Rib Body Machines For Underwear and Bathing Suits.

Sweater Machines Rib and Jersey Types.

Special Knitting Machines From ¼ inch to 36 inches.

When you buy an automobile—you are sure to purchase a car with a proud performance record. Why not apply the same excellent logic when you equip your mill with knitting machines? The name Brinton stands as high in its field, as Rolls-Royce, Packard, and Cadillac in the automotive industry.

Depend on Brintons

H. BRINTON COMPANY

3700 Kensington Ave., Phila.

New York Office: 366 Broadway

BRINTON CIRCULAR KNITTING MACHINES

of EVERY Kind for EVERY Purpose

THE KNIT GOODS MARKETS . .

THERE will be considerable business in full-fashioned hosiery to be had for four to five weeks preceding Easter, in the opinion of several manufacturers who already are at work on some advance orders—business taken early in February. But "It will be taken at very low prices, and therein lies a danger for a lot of manufacturers," says one of the busier northern rural mill executives.

There seems prospect of a leap in activity by the middle of March, when much of the hosiery for the Easter shopping period should be in process. That orders would be received late was well indicated as last month wore on and shipments to jobbers remained an uncertain quantity, while large retailers had either not ordered or had bought very sparingly. A part of the delay could be attributed to a waiting for something definite in the way of style forecasts.

Mill managements looking to a brisk market in March were influenced in their opinions by the fact that there had been fewer than the usual number of pre-Easter sales by large retailers. There were some fairly large offerings of mill close-outs preparatory to showing new lines, but not enough, it was felt, to cause any material letdown in the regular spring business. A big question with many factors was, will the trade again settle down to routine humdrum after the early spring session? The answer, it is expected, will depend upon the extent to which the full-fashioned industry sets its house in order.

Much interest is manifested in the trade in the announced proposal of the H. C. Aberle Co. for a revival of activity in the full-fashioned hosiery industry. The company, one of the larger hosiery manufacturers in Philadelphia, after operating its plant on a much curtailed basis for some time made an announcement to the United Press on February 13 of a plan of co-operation with employes in which it was stated the plant would be shortly placed on "full schedule production" giving employment to 1,000 to 1,500 persons. As it was believed no reduction in wages was contemplated, competing manufacturers with a thorough knowledge of the markets and the industrial situation, indulged in speculation as to whether prices might be reduced for obtaining the additional business necessary to keep so many operatives employed while, for weeks, the mill was understood to be operating to only 25 per cent capacity. The Aberle company was the first manufacturer to announce speeding up recovery by speeding up production and "leave momentum to pick up as we go."

Expansion of the distribution of the better types of silk full-fashioned hosiery and a perhaps corresponding decimation of establishments which have been struggling against adversity in the production of goods intended to appeal on the matter of price, would but be a visualization of a result from an unorganized but seemingly growing movement of which there were vague reports in some northern hosiery centers in March. The wish may have been father to the thought, but it was apparent the thought continued to spread, a weeding-out sentiment representing a reaction to the demoralized condition of the hosiery markets in January.

Gradual Recovery in Hosiery Industry Predicted Since "Worst Month" Now is in the Background.

Off-hand declarations by various manufacturers made it appear as a composite opinion in the trade that January was "the worst month, for light volume of sales and low profits or no profits, since 1929." Among those voicing accord in this opinion was the managing executive of a mill which was as busy during January as for the average in 1932. The mill had obtained a large chain store order in December for deliveries during January, and the plant was kept running over time in getting the goods into transportation. But this establishment, it was stated, was no exception to the general run in matter of elimination of profits.

There seems to have developed a strong feeling in a powerful element of the full-fashioned industry that prices for hosiery of 42-gauge and finer will have to be low enough to make production, of 39- and 36-gauge absolutely unprofitable—a losing proposition to an extent that probably not one in 50 of the manufacturers of the coarser gauge could last long even if he were willing to make further sacrifices, in resentment at being singled out for an attempt to shove his type of product out of the picture.

Persons commenting on the proposal that in order to establish a profitable market for the presumed more desirable construction, it will be necessary to limit production of the very cheap to a minimum, point out that there already has been some progress in that direction. All other specifications being alike, it is held, with 42-gauge and 39-gauge hosiery offered at the same price, there would be little or no sale for the latter. Most of the 39-gauge, it is maintained, is made on low speed short frame machines, many of which have been in use so long that they require a great deal of attention and, besides, are a source of an unduly large per cent of "seconds". Thus, it is suggested by interests looking for a less competitive market for their particular types of hosiery, it should be no difficult matter to force a curtailment of 39-gauge output. That accomplished, say those harping on the feasibility of the proposal, the next attack will be on 42-, rated the bread-and-butter gauge.

Southern Mills Have Few 39-Gauge.

It seems apparent that if any movement intended to reduce the number of 39-gauge machines in place were undertaken by machinery or manufacturing interests, it would be felt in greater extent in several northern sections. According to an indicated exhaus-

tive survey as of July, 1932, only 5.3 per cent of the 39- were in North Carolina and 10.2 per cent in all other southern territory, while 27.8 per cent were credited to Philadelphia, 10 per cent to Pennsylvania outside of Philadelphia and Reading, the latter field having reported but 1.6 per cent, as noted in an analysis of the survey in COTTON.

A year or two ago, gauge was being stressed in the exploitation of women's hosiery. As it was found this meant little to women buying hosiery, but gave rise to questions bearing on gauge, it was to a large extent eliminated as a talking point, in special sale advertising, particularly.

Nobody advertises 39- or 42-gauge, yet according to the survey of last July these two types represented more than 65 per cent of all the full-fashioned machinery in place in American mills, and there is little doubt that relatively more of this equipment than of finer gauge has since been producing, which of course is the milk in the cocoanut in much of the discussion of proposals for getting rid of competition with coarse-gauge hosiery.

It seemed a question, considering quotations heard last month, whether 39- and 42-gauge were not in the same category, as to inadequate prices. The Siliko Hosiery Co., Philadelphia, manufacturing both, exclusively, in announcing liquidation stated through the president, John V. Slaughter, that the step was taken to put an end to losses; that the more hosiery the company sold the more it lost, and the only way for ending the losing game was to quit it, the intention being to dispose of the 36 knitting machines. "We have no bank or merchandise debts and no mortgage debt," said Mr. Slaughter.

Mill Forced by Low Prices to Quit.

The Siliko, a member of the Full Fashioned Hosiery Manufacturers of America, could not meet competition in either 39- or 42-gauge. Another Philadelphia manufacturer making both, to the exclusion of all other types, in January shut down producing on the 42-, the management stating the prices quoted by some competitors were on an absolutely losing basis.

It may be significant, in this instance, that the type against which there seems unorganized but substantial antagonism is the one which held out against a finer gauge rival. Several jobbers reported a few weeks ago that they had taken 45-gauge out of their lines, for the reason, they stated, they could get no more for them than 42-gauge. From which the manufacturers feeling the effect of this decision reason that the jobbers in question aim at price rather than at the characteristics of the commodity.

Some manufacturers might be mentioned who refuse to treat 45-gauge stockings as a price proposition. Two, for example, who operate their plants along practically identical lines, accept no orders that do not show a profit. Their only stock accumulations are the over-runs, which are disposed of in quantities so small that not infrequently a slight premium is obtained. The mills maintain ideal relations with their operatives through ability to assure them work for given periods, depending on the volume of orders in hand. When these are completed, the plants become idle and remain inactive until enough new orders are received to resume, with renewed assurance of steady employment for a few more weeks. "We've been pursuing this policy for a year," said the executive of one of the organizations, "and have noted that the help is less hesitant to spend money than if they were not sure of their jobs for reasonable periods."

A somewhat recent special sale of "every pair perfect" silk stocking at 44 cents included 45-gauge four-thread silk chiffon and 48- and 51-gauge three thread all silk, besides seven thread of all silk.

Say Industry Needs Overhauling.

That the hosiery industry is in need of a thorough overhauling is conceded generally, and it seems more likely now than at any time during discussions of trade evils in the past three to five years. Julian Armstrong, it will be recalled, attempted it through a price reporting exchange, and a number of manufacturers posted their checks for $100 each as an initial payment toward membership in an organization that never was formed because of insufficient co-operation among manufacturers. Organizations have failed, in this instance as in many others, to effect much needed reforms. It is frequently heard in worsted and woolen circles, "We had the Wool Institute, and afterward the Worsted Yarn Institute and now most of us are destitute." So, it is beginning to dawn on the minds of factors in the full-fashioned hosiery industry the overhauling is something that will come about gradually, as circumstances dictate policies and manufacturers accept them.

There is one group of manufacturers that has sought to perfect sweeping price reductions operative temporarily, it is intended, in order to compete with another, having certain organization advantages. There is another element that looks forward to the industry simply growing out of its ailment and, later this year, expansion. One of Philadelphia's old-time mills some few weeks ago reduced wages, and hosiery prices accordingly, the operatives consenting to the wage revision. The hosiery was offered at the reduced quotations and did not sell—buyers said the price was higher than that of comparable lines.

A department store some weeks ago eliminated bonuses for the heads of departments, putting them on a flat salary basis. Bonuses on hosiery department profits, it has been ascertained, have proved a temptation for buyers to dicker for price rather than merit. One authority estimated recently that one buyer's bonus, independent of his salary for an average year during the past three-year period, amounted to more than the profits of any one among 300 representative manufacturers of full-fashioned hosiery—and this buyer, it should be stated, maintains higher average prices for hosiery than most of those in his class. But he has been no less influential in "persuading" manufacturers to permit him to name their prices when trading with the store for which he buys.

Standard types of construction of 42-gauge is presumably a 50-cent retail number, and at $4 a dozen to retailers might be assumed to provide for a sufficient markup. Yet most buyers for department stores have attempted to set up $3.75 as their arbitrary maximum. In February what purported to be 42-gauge was offered for $3.40 a dozen. Even this was less than a retail price in a Philadelphia department store which, in a display advertisement, exploited "perfect, full-fashioned silk mesh for 27 cents, four pairs for one dollar." The stockings were offered under the brand of a well known Pennsylvania mill in the smaller class, which a few days after the "sale" was petitioned into bankruptcy by a stockholder.

"Mannish" Clocks for Women's Hosiery.

On the same day that 25-cent silk mesh full-fashioned were being offered, distress branded hosiery from another Pennsylvania mill was selling in another Philadelphia store for "an historically low price"—approximately one half the price for the identical goods sold regularly. A considerable lot of three-thread silk 48-gauge was sold to a semi-exclusive shop for women, to go on sale at 55 cents, two pairs for one dollar. Some of the stockings carried clocks, some were clockless.

Women's hosiery with "mannish" clocks was offered a few weeks ago as an Easter novelty. The clocks are mannish in that they are much abbreviated, being of about the same lengths as clocking on men's half-hose. The offering was in the nature of a try-out among a few of the leading big retail stores. It has been suggested that if the same element that represented the foolish set which a few summers ago discarded hosiery for bare legs, carries the "mannish" idea in attire to pants—women discussing the possibility seriously prefer the word "trousers"—there might be some hope of keeping a few high speed machines in action on hosiery with mannish clocks. It might sound pessimistic to even intimate a possibility of a spread of the women-in-pants fad sufficient to make a dent in demand for silk stockings. But, it was suggested colloquially, it is but a short step from pajamas on the beach to trousers on the streets.

Day and Night Plant Operation a Short Route to Receivership.

The first half of February showed little improvement over January, according to some manufacturers, this accounting for many of the small to moderate-size mills being idle and an increasing number struggling on part-time schedules, in the hope of enough Easter business developing to go around. Several which had been able to truthfully report "running day and night" seem to have run themselves out of funds, for they are either in possession of committees of creditors or in process of being wound up in either bankruptcy or receiverships. A few are understood to be controlled by banks carrying their loans.

The owners of some of the idle plants announce their machinery for sale, but are reluctant to set a price until bona fide buyer with the price applies. "We will sell if we can," said one executive. "If we cannot, we may resume or seek a new location for our plant." Some who say they have been content to operate so long as sales provide for the overhead, are not now in production, being unable, it is stated, to obtain prices sufficient to cover overhead charges. "We enter the spring season in gloom," said a leading manufacturer commenting on conditions, "but I believe we might as well look at the situation as it appears to us and prepare to face a house-cleaning which I fear cannot be delayed by prospects for or long after Easter."

It is difficult, without inside knowledge of conditions as applying to individual plants, to approximate the status of any one. For example, one of the most under-rated plants ranks among the more successful in volume of business and net returns, according to common report. This is attributed to having a strong selling organization. Another establishment, less boastful of volume, is satisfied with the returns, in this case from a five-thread silk 45-gauge stocking which possesses the attributes of a chiffon plus the wearing quality of service weight.

One manufacturer tried the plan of giving a pair of stockings free to jobbers for every 10 dozens sold. This was accepted as a fair premium on purchases at $4.50 a dozen, but it was found the free stockings cut a large slice from the profits on $4.50 and the gift scheme was abandoned. The manufacturer said before giving it up that had there been assurance others would not adopt the same plan or increase the premium, he would have continued it, as preferable to reducing his price by even so little as a nickel a dozen.

Try Out Various Sales Plans.

About the time, four or five weeks ago, that the Dexdale Hosiery Mills, Lansdale, Pa., was reported inaugurating the consignment plan of carrying stocks of hosiery for retailers, the Propper McCallum company discontinued it. Others who have had experience with consigning hosiery, unsold goods after a given time to be returned, say it is not feasible, being almost invariably unsatisfactory to the shipper and in instances not to the advantage of the retailer consignee. This plan of distribution by manufacturers is, of course, not new. It was practiced so long ago that, if it were satisfactory, it doubtless would be adopted, in the present condition, by numbers of the stronger manufacturers, to the serious disadvantage of concerns not financially balanced for carrying customers' stocks with a return privilege as to unsold goods.

The idea of pyramiding commissions on sales of stockings to women seems to have caught even some women who really do not need the promised additional income but are responsive to any plan for providing increased pin money. By capitalizing their social status and selling stockings to their acquaintances, they learn from the prospectus of a concern supplying the goods, they become eligible to a cash return running into thousands of dollars. All they have got

to do to get started is to sell as many friends as possible a carton of the stockings. Each purchaser is urged by her to start a similar chain among her friends. Only a few will do so, but the originator of such a chain soon has visions of some easy money falling into her lap, and redoubles efforts to interest still others.

A woman who some time ago organized a chain draws the hosiery from a jobber, who pays a bonus on her purchases when they total a given amount. She is reported doing fairly well. It is her experience that women, barring a diminishing minority element, prefer paying a dollar a pair for dollar value to taking a chance on inferior grades at less cost. In the case referred to, card parties are organized and it is at the sessions of these parties that the promotional work is done.

Heavy Weight Underwear Campaign Gets Start with Jobbers Apathetic.

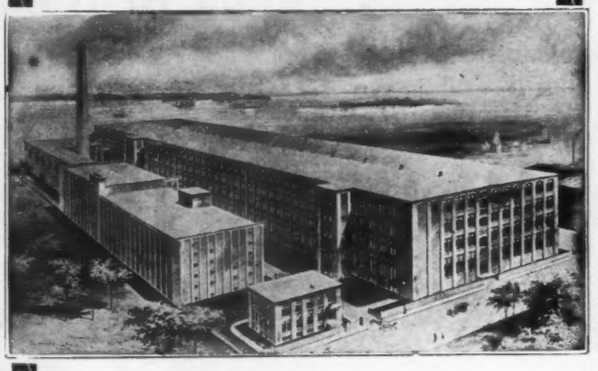
Heavy weight cotton underwear lines from a number of mills were opened formally last month although some representative jobbers are said to have left the inference they believed distributors generally would not be interested in heavies at that time, that they were more interested in selling light weights, of which many had bought quite freely. There was a division of opinion among manufacturers as to the desirability of opening for fall during the week of February 20, but following a meeting of the American Knitwear Manufacturers' Association in Washington on the 14th, it was announced by Roy A. Cheney, secretary of the organization, that was the time set for staging the formality.

It is alleged by some members of the association that a few manufacturers already had made side door showings of their samples and that therefore it would be a mistake to defer the opening longer. Others were in favor of a later date. It is understood some leading jobbers had been sounded on the matter and that proponents of a February opening did not receive the looked for encouragement. Some of the jobbers have said they failed to get the response from retailers that was expected. This was attributed to a wide area of low temperatures and an old-fashioned winter condition, retailers explaining that they had not noted any indication of a discarding of heavies for spring weights. Thus it happens that manufacturers of heavy weight underwear for men and boys face probably a short production season, while the outlook for shirts and shorts is said by manufacturers and representative retailers to be a further increase in demand.

Two-Piece Suits, 25 Cents.

Several producers of men's summer weight underwear thought they saw in a cheapening of shorts an opening for a return of light weight union suits. There seems nothing in present distribution of any type to support such a view. One nationally known manufacturer of the range of men's mediums and light weights reports the plant as busy as at any time in recent boom periods, and the business is mostly in shirts and shorts. The concern is filling

Quissett Mill
New Bedford, Mass.



Spinning Quality Into Yarns

Quissett's modern and efficient mechanical facilities for spinning yarns are necessities.

Of much more importance to the textile man, however, is the interest and utmost care exercised by Quissett workers throughout every process.

It is this human control that maintains the uniform high standard of Quissett Yarns . . . the element that adds confidence . . . the assurance of satisfaction . . . as an inherent tangible value.

Carded and Combed Cotton Yarns in all numbers and Descriptions.

Ply Yarns our Specialty.

Egyptians, Sea Island, Peelers, Sakelarides, Pimas and Peruvians.

QUISSETT MEANS QUALITY

Wm. M. Butler, Pres.
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It Keeps OLD Customers

The Twenty-Ninth Annual

KNITTING EXHIBITION

April 24, 25, 26, 27, 28, 1933

Commercial Museum Philadelphia

Under the Auspices

NATIONAL ASSOCIATION of HOSIERY and UNDERWEAR MANUFACTURERS

It Builds Solidly For The Future

It Insures Good Opinion of Your Products

This exhibition and convention is, without exception, the greatest institution for constructive, forward looking progress in all the Knit Goods Trade. It has definite functions which it performs, completeness and efficiency that stamps it, among buyers and sellers, as indispensable to the industry

The Commercial Museum is transformed into a vast market place where buyers congregate from all parts of the United States and Canada. Exhibitors present these buyers with instructive, profitable and business-getting displays of every conceivable variety of equipment, product or service used in the thousands of knitting mills and factories.

It Keeps Your Name Familiar to The Trade

▲ It Actually Makes Sales ▼

COMPLETE SERVICE WITH STANDARD EQUIPMENT

One hundred fifty dollars is the price of a standard space measuring 10 feet square. This rate includes the following service and equipment without extra charge.

Regulation Sign
Dividing Rails
Counters
Floor Covering
Two Chairs
Desk

Electrical Installation and Steam Connections

Every conceivable want of the exhibitor is anticipated and prepared in advance.

APPLY FOR SPACE NOW

Chester I. Campbell Organization, 329 Park Square Bldg., Boston

orders for light weight union suits, three-quarter length and half sleeves, but makes none for stock.

The demand, it is stated by an executive, is over one hundred to one in favor for shirts and shorts. The price for the union suits has not been reduced in a long time, the management holding the view that "if a few persons insist on wearing old style union suits, they should expect to pay old style prices, as the cost of the making only small quantities, when we could be more profitably engaged on the modern, is something to take into consideration."

It appears that for some of the more progressive and far-seeing manufacturers, shorts (substituting for drawers) were almost as profitable, relatively as it was said of women's silk full-fashioned hosiery a little over a half decade ago. Recently, however, both the shirts and shorts have been cheapened, as is indicated by quotations on, presumably sub-standard goods, and statements by manufacturers expressing amazement at what is said to be "making a 10-cent item of each garment" a 20-cent price for a 2-piece suit.

Shorts were offered by a jobber at 82½ cents a dozen, a few weeks ago. It was pointed out that if a jobber could realize a profit on 82½ cents, it should be no difficult matter for buyers for large chain stores to put the shorts in stock at 80 cents a dozen, this providing for a 50 per cent markup in passing them over the counter for 10 cents apiece. The shirts, athletic style, of course, and rib construction, show even greater profit, being offered by a mill for 72½ cents a dozen.

The quotations are said by persons long in the production and distribution of underwear to represent the lowest prices at which a suit was ever sold. A common price to retailers by jobbers is $1.25 a dozen for shorts, stripes or plain, few of the latter being sold. At this price, said a prominent jobber, "We regarded these types so low that we felt it would be safe to buy early, and we stocked shirts and shorts very heavily. As we have been disappointed in not moving them out to retailers as fast as we ought to, we are not, of course, interested just now in heavy weight underwear, and I would not care to predict when most of the jobbers will be ready to operate. But I would say that by the middle of March there will be a better movement of all seasonal textile lines."

Business in Women's Cottons Developing.

There is some business developing in women's cotton light weight underwear. Large retailers were last month buying, but on an ultra conservative basis, and to that time manufacturers were proceeding with caution, aiming at having practically no stock goods. Buyers, it was stated by one of the better known concerns selling unbranded lines to leading stores, have samples and are sending small orders.

Regardless of the avalanche of criticism laid against women's rayon underwear on the ground of a flood of skimped and otherwise cheapened garments, sales are well maintained according to manufacturers of the better grades, and jobbers report their small town trade doing well in rayons. Which

AVONDALE MILLS

Sycamore, Ala. — Sylacauga, Ala.

OFFER THE ADVANTAGES OF LARGE FACILITIES — QUICK SERVICE

THEY CAN READILY SUPPLY ANY TWIST, PLY, OR PUT-UP IN CARDED OR DOUBLE CARDED YARNS FOR KNITTING, WEAVING OR INSULATING IN ALL NUMBERS FROM 3's TO 40's.

Selling Agents:

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BOSTON CHARLOTTE NEW YORK
PHILADELPHIA READING

The "READING"
FULL-FASHIONED KNITTING MACHINE

TEXTILE MACHINE WORKS
READING, PA.

"Customer Satisfaction"

In needles—the difference in price is a matter of pennies; the difference in performance is a matter of *customer satisfaction* . . . Good business demands the best needles.

That we are America's largest producers of Spring Beard Needles, and that nearly all manufacturers of fine quality stockings are standardized on ROYERSFORD is a tribute to CUSTOMER SATISFACTION.

ROYERSFORD NEEDLE WORKS, INC.
America's Largest Makers of Spring-Beard Needles
Main Office and Works — Royersford, Penna.

ROYERSFORD NEEDLES STANDARD STEEL AND DURAKROME

should cause no great surprise considering the relatively light distribution of cottons for women.

Slow Trading in Bathing Suits Laid to Reckless Price Cutting.

It was estimated by manufacturers of knitted outerwear that by the 1st of March not more than 25 per cent of the bathing suits distributed through jobbers for the 1933 season would have been contracted for. This untrustworthy prediction was based on the stage of operation by average plants in the East and Central West, and seems as likely to be too high as too low. A few of the larger estabments are credited with having booked a large amount of business well in advance of the beginning of March, but for the rank and file of manufacturers it seems likely that they had not more than four months on which to turn off all the business awarded to them by dilatory jobbers. From which it appears there either will be a demand for more than mills will have produced or that demand may have shrunken for this year in about the ratio that the swim suits have been abbreviated.

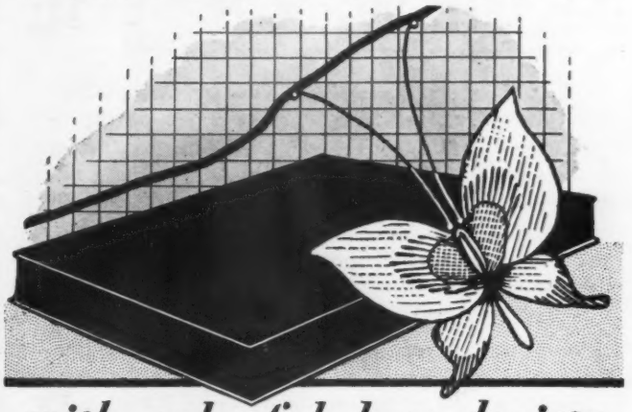
The bathing suit business for the coming season appears to have been poorly handled. As some predicted, the opening was months too early. Jobbers were not ready even in January to buy more than sample lots, and were influenced later, by price cutting, to defer commitments. Mills should have been operating at capacity in February, in order to make up for time lost in January. A few were well engaged; many were in need of orders. Some mills which had a shutdown holiday for several weeks resumed with two shifts of operatives. The business was not well distributed and it is stated in the trade that some of the more seriously offending price cutters have the least business. Low and unsteady prices for worsted and cotton yarns seem to have affected business in knitted outerwear lines as a wobbly raw silk market contributed to the unsatisfactory situation in women's silk hosiery.

There was a picking up in trading in bathing suits toward the latter part of February, and there seemed assurance that most mills were about to enter upon a busy session.

There appears some uncertainty as to the extent of the business in bathing suits of part lastex. The less lastex used in combination with worsted or other fiber the lower the price. This caused a suspicion of price cutting in suits described as lastex, placing the chief users of the elastic yarn at a seeming disadvantage until they could make their peace with the trade. The word "lastex" applied to bathing suit construction seems to possess considerable advertising value. Whether the so-called lastex suits will be form fitting in greater extent than are properly knitted suits of selected pure worsted yarn may be shown in summer at the shore resorts.

Interest in misses' and boys' sweaters has developed, and the outlook for sales of these lines, along with womens', is believed promising. There prevails an opinion that demand for men's sweaters for spring will not measure up to deliveries for the corresponding season of 1932.

Boost Your Sales Curve



with colorful box design

Colorful design in textile boxes as handled by Old Dominion is a sound step forward in increasing sales . . . for color by Old Dominion is scientifically executed to add a convincing note of quality—and a profitable eye-appeal to your package. Write nearest plant for samples, prices.

OLD DOMINION BOX COMPANY, INC.
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quality OLD DOMINION Paper Boxes

If you are

Degumming and Dyeing your Hosiery in

the same bath—

you can obtain better results with

SERISOLVE

the ideal degumming agent and dyeing assistant

Write for information and sample.

JOHN CAMPBELL & CO.

American Dyestuff Manufacturers
Established 1876

75 Hudson Street New York City

REVIEW OF THE YARN MARKET

Philadelphia, February 17th, 1933.

INQUIRIES relating to cotton yarns for nearby deliveries continued to reach Philadelphia dealers after the easing in prices which followed a mild movement toward steadiness on a basis of around 12 cents for carded. During that few weeks to about near the middle of February, weaving and knitting numbers were practically on a parity. The underwear mills had been taking in carded and combed for light weights, while weavers were passing up some bargains in ply and singles, eventually showing some interest in yarns for the tapestry and kindred trades. The movement toward a more active distribution was interrupted by downward fluctuations in cotton and news of an eight-day holiday for the 1,500 banks in Michigan which was decreed by the governor of the state.

By the time the business public had digested the reasons for and results of the temporary closing of the Michigan banks, the yarn markets had returned to the previously prevailing state of tranquility, with this difference—buyers felt there had been placed in their hands another lever for prying prices loose from the then existing levels, and offers to buy were on a basis of a half cent per pound less for coarse counts. As it became more difficult to do business in yarns at prices acceptable to many spinners, trades became fewer and for less poundage. The recession in volume seems to have been felt the more keenly in carded knitting numbers, in which much of the trading had been done. Obviously, the accounts of manufacturers shipping to distributors in Michigan caused certain of the yarn merchants some apprehensiveness. Otherwise the bank holiday might have passed unnoticed in the Philadelphia yarn trade.

It was apparent to dealers that manufacturers were ready to contract for yarns for their spring needs, but hesitated mainly because of fear that prices might not hold out against business world news of an adverse character. Fear rather than a differene of a half cent standing between seller and buyer was the dominating factor in the ultra-conservative trading. It was more difficult to obtain concessions on coarse counts of single carded than on the finer counts, for especially light weight underwear.

It was understood among sellers who were underbid when business was offered on a competitive basis that carded yarns were sold in instances on the basis of 11 cents for 10s single on cones, 11½ for singles skeins and 11½-12 for 2-ply warps.

One dilemma faced by elements in the yarn trade that originated in the Michigan banking situation was the matter of dealing with requests for adjustments on existing contracts. Dealers, even before the announcement of the bank holiday, were quite busy at times with requests of this character, and it is understood that with a view to causing minimum disturbance of customers' credit, the yarn trade adopted a very liberal policy, except in the cases of some chronic cancelors who had lost their right to concessions in a nervous market.

Combed peeler yarns sustained a setback, so far as relates to singles, in which there was some very keen competition for business in 36s and 38s. Business in both counts was lost to a southern spinner on a difference of two cents a pound between high and low quotations. Two-ply combed peeler prices have not been revised for trade publications since the last revision in mercerized around eight weeks ago. Two-ply mercerized was sold in February on the basis of 47 cents for high grade 60s. Lower quotations were heard, but not confirmed as applying to sales of best quality.

Philadelphia prices published February 16th follow:

Single Skeins.

4s to 8s	11½	10s	12
12s	12½	14s	13
16s	13½	20s	13½ @14
24s	15½	26s	16½
30s	17½		

Single Warps.

10s	12	12s	12½
14s	13	16s	13½
20s	14	26s	16½
30s	17½		

Two-Ply Skeins

8s	11½	10s	12
12s	12½	14s	13
16s	13½	20s	14
24s	15½	26s	16½
30s	17½	40s	28

Two-Ply Warps.

10s	12½	12s	13
14s	13½	16s	14
20s	14	24s	15½ @16
26s	16½ @17	30s	17½ @18
40s	23 @24		

Frame Spun Carded Cones.

8s	11½	10s	12
12s	12½	14s	13
16s	13½	18s	14
20s	14	22s	14½
24s	15½	26s	16½
30s	17½	40s	23
30s double carded			19½
30s tying-in			16½ @17

Carpet Yarns.

8s and 9s white warp twist	12
8s tinged tubes	11
8s part waste	10½

Two-Ply Combed Peeler Skeins and Warps.

8s to 16s	20	20s	21½
24s	22	30s	25
40s	30	50s	34
60s	37	70s	47
80s	57		

Single Combed Peeler Yarns on Cones.

10s	18	14s	19
16s	19½	18s	20
20s	20½	24s	21½
30s	24½	36s	27½
38s	28½	40s	29½
50s	34	60s	37
70s	47	80s	57

Mule Spun Carded Yarn on Cones.

10s	17	12s	17½
14s	18	16s	18½
18s	19	20s	19½
24s	20½	28s	21½
30s	22½	40s	28

Mule Spun Combed Peeler Yarn on Cones.

10s	23	12s	23½
14s	24	16s	24½
18s	25	20s	25½
22s	26½	26s	27½
28s	28½	30s	29½
36s	32	38s	33½
40s	34½		

Tinged Insulating Yarns.

8s–1	10	10s–1	11
12s–1	11½		
8s–2	10½	10s–2	11
12s–2	11½	20s–2	18½

TEXTILE DEPURATOR

TURNING THE WHEELS OF PROGRESS

NEUTRALITE DETERGENT

NEUTRALITE XX For Wool and Silk
DEPURATOR XX For Cotton and Rayon.

Gently Persuasive but Absolutely Determined.

Perfect elimination at a Caustic Strength well below the Danger Line.

An Abundant Supply of a Mild Potential Alkalinity the Hydrolysis of which is CONTROLLED by the Requirements of the Work in Hand.

LOOK!

A comparison in three important factors with Commercial Materials.

0.25% Solution.

	pH Value	Tension Dynes per Centimeter Surface*	Interfacial*
Caustic Soda	13.5	72.4	25.88
Sodium Metasilicate	12.2	72.1	28.25
Trisodium Phosphate	12.0	71.0	28.25
Soda Ash	11.7	72.7	28.34
Sulfonated Castor Oil	7.0	43.0	15.07
DEPURATOR XX	11.8	35.6	5.95
NEUTRALITE XX	9.4	32.5	13.42

(*Note: Surface tension at 20° C. Interfacial tension against Benzene at 40°C.)

A trial sample will be sent upon request, without cost or obligation on your part.

"The proof of the pudding is in the eating."

Detergent Products Corporation

307 Peachtree Building
P. O. Box 1725
Atlanta, Ga.

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TRISODIUM PHOSPHATE

For Over 15 Years 1917 1933

HYDROSOL—the Scour and Penetrant—Has been doing a thorough job

TO the immense satisfaction of mills and dyehouses, HYDROSOL has been used as a scour on all fibers and mixtures. Removes mineral oil and other foreign matter and keeps bath in perfect solution. Works with or without soap. Prevents formation of lime soaps.... HYDROSOL is exceptionally valuable as a penetrant. It permits complete penetration and insures clear, level dyeings.

HYDROSOL is practical, economical and thorough.

Our new folder, "Hydrosol, the Scour and Penetrant," on request

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SOAP MANUFACTURING CO., INC.

WM. H. BERTOLET & SONS
2600 E. Tioga St., Philadelphia
See Textile Catalogs, page 186

Laurel has been solving Textile Treating Problems since 1909

BONE-DRY HOSIERY FINISHING BOARDS

PEARSON
HARD MAPLE
HOSIERY FINISHING BOARDS

THAT WORK ABSOLUTELY SMOOTH

The famous bone-dry, unshrinkable, well finished boards that give universal satisfaction.

Especially recommended for silk and chiffon hosiery. Satisfied users the country over. A list of these users gladly furnished to any mill on request.

JOSEPH T. PEARSON & SONS CO.
Kensington & E. Boston Aves., Philadelphia, Pa.

FOR BLEACHERS* DYERS AND FINISHERS

who

would rather be safe than sorry

*STAR BRAND SILICATE OF SODA

*METSO CRYSTALS SODIUM METASILICATE

Constant control keeps the iron content at a negligible amount. In fact, Metso Crystals, the new industrial alkali, are practically iron free.

Reduce seconds with these two P.Q. Silicates. Samples and further information cheerfully furnished.

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The Audit Bureau of Circulations was formed by large advertisers and publishers to put a ban on circulation secrets. Publications willing to have their records checked by impartial auditors belong to the Bureau,, and the number of papers they sell is published to the world. No one doubts the "A. B. C." report. It eliminates unknown quantities.

COTTON

ATLANTA, GEORGIA

SEND FOR THIS NOW

MR. A. W. ROBERTSON, Chairman
Committee on Industrial Rehabil.tation
435 Seventh Avenue
Pittsburgh, Pa.

Please send me without charge.....copies of the material you recommend for use by our salesmen—

☐ Booklet — "Rehabilitation—What's in it for *you*?"

☐ Check Sheet for Equipment Study

☐ "Rehabilitation — Where They're Doing It" List

We want to get our share of the business the committee is stirring up. This will provide enough for all our salesmen.

(Name) .....

(Address) .....

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Cut out this coupon and mail it in.

FOR YOUR SALESMEN

Men go forward on ideas . . . not arguments. Here's an idea that is moving them right now!

THE Industrial Rehabilitation Program has swept forward in all sections of the country because it is a sound idea. It is one of those simple suggestions that work because they are right. It has been right enough to start up already more than $165,000,000 worth of traceable commitments for machinery and materials. Orders are being placed.

It makes a vital situation, for every equipment manufacturer. For the attention of management throughout the country is being focussed on how to save by modernizing. Factories, warehouses, hotels, stores, office buildings are being studied right now to see where money can be saved on present business, where it will pay to make ready for more volume at lower costs. In short, the men who operate these properties are looking now for the very thing that you have been trying to sell them.

Go back to every prospect where you can offer an economy. Get your share of the business. Tie into the rehabilitation theme with your advertising and selling. Take advantage of this opportunity. Get the Booklet, the Check Sheet and the Where-They're-Doing-It List and have your salesmen use them. Write for them today. They will be sent you in any reasonable quantity without charge, or in large quantities at cost.

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A. W. ROBERTSON, *Chairman*

435 Seventh Avenue, Pittsburgh, Pa.

THE Committee on Industrial Rehabilitation was established last August as a national effort to promote the repair and re-equipment of factories, warehouses and large buildings, where such improvements will bring benefit through cost reduction, and by creating employment and stimulating business. Local committees are at work over the entire country and already commitments for more than $165,000,000 worth of rehabilitation work have been reported.

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"The Weaver's Friend"

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PENETRATES the WARP!
Carries the WEIGHT into the Cloth!
Insures Good Running Work!
KEEPS HELP Satisfied!
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BOSSON & LANE, INC.

Manufacturing Chemists
Established Jan. 1, 1895
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High Grade Castor Oil Products
Sulphonated-Saponified

Soluble Oil — Para Soap Oil
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PENTRALYN, a superior assistant for Beam, Spool, Bobbin and Package Dyeing.

Bleach Softener CSO, Finishing Sizings and Softeners.

VICTROLYN, the economical assistant in warp sizing. Penetrating, Lubricating and wholly efficient.

B & L Bleachers' Bluings and Violet Tints

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Where FASTNESS to LIGHT is Important.

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SOLVAY products are sold on the basis of *actual* Alkali content.
SOLVAY 58% Soda Ash *contains* 58% of *actual* sodium oxide.
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Alkalies and Chemical Products Manufactured by The Solvay Process Company
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LAPPINGS and BLANKETS for PRINTING MACHINES
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For Best results in Sanforizing use
KENYON'S ENDLESS WOOLEN BLANKETS

NEVER
Was Protection So Necessary!

And never has the protection afforded by Stewart Non-Climbable Chain Link Fence been more popularly accepted. Many mills have realized the value of an investment in the modern 24-hour-a-day watchman—and to those mills of industry which are making plans for better business, we are ready to quote on fence requirements.

Write for literature and name of local Stewart Representative.

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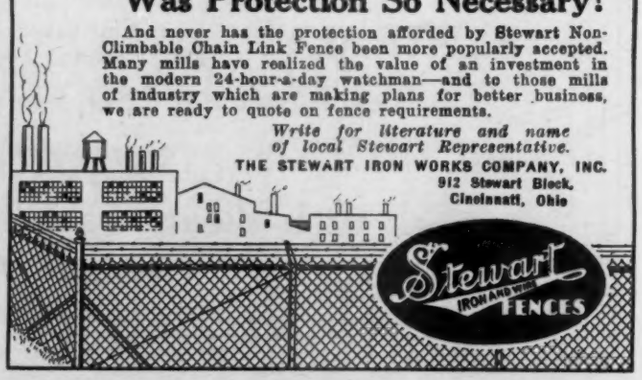
912 Stewart Block,
Cincinnati, Ohio



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MINEROL

BY THE

BRETON MINEROL PROCESS

PATENTED

A system of conditioning cotton and other textile fibres by applying MINEROL as a lubricant additional to that which is natural to the fibre.

Why is it so many mills have adopted the BRETON MINEROL PROCESS?

BORNE SCRYMSER COMPANY
17 BATTERY PLACE, NEW YORK

SULPHONATED OILS SHOULD NOT BE STICKY NOR HAVE ANY DISAGREEABLE ODORS

Hydroxy Sulphonated Tallow Softeners do not have the above objectionable features and for these reasons they are preferred for bleached goods and starch mixtures.

Hydroxy Sulphonated Oils are uniform in strength, degree of sulphonation and neutrality.

It is not necessary to change your formula each time—Hydroxy Oils are dependable. Made with greatest care. Only No. 1 Medicinal Castor Oil is used in Hydroxy Sulphonated Castor Oil. Positively no No. 3 Castor is used in any Hydroxy Oil.

Hydroxy Sulphonated Oil can be supplied in 50% and 75%, or any strength desired, but 50% is 50%—not 40%.

The KALI Mfg. Co.
Manufacturing Chemists
1410 N. Front Street, Phila., Pa.

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Warp sizing as well as printing, dyeing and finishing processes offer many problems in the use of starches, dextrines and gums. The selection of the proper products is of great importance. Listed below are selected products available for the purposes and conditions of exacting textile manufacturers.

These starches, dextrines and gums are manufactured by carefully controlled and standardized methods. Purity and uniformity are guaranteed. Economy and efficiency are attested by the constantly increasing number of users who are getting satisfactory results.

THIN BOILING STARCHES
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GLOBE PEARL BUFFALO
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And Advertising Terms

The Audit Bureau of Circulations is the cutting edge of the "Truth in Circulation" movement.

Today, nearly fifteen hundred publications of every type, published in the United States and Canada, make detailed semi-annual statements through the A. B. C. as to the size of their circulations, where they distribute their copies and how they build up and maintain their subscription lists. Every year, the traveling auditors of the Bureau visit these publications and examine and report on the accuracy of their circulation claims.

One of the most important contributions, if not the most important, which the A. B. C. has made to the intelligent sale and purchase of advertising space is the establishment of a uniform language for buyer and seller to use. Before the A. B. C. was founded, few advertising terms were used and understood in the same way by everybody. "Net paid circulation," for instance, meant ten or eleven different things. The A. B. C. has given definite meanings to words and terms. When an advertiser is comparing a number of different publications, he knows that the same word used in the report of one publication means exactly the same thing in the reports on the others.

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COTTON

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Things are happening in WASHINGTON

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. . . Shifting Political Scenes Attract Business Men as Well as Hordes of Sightseers . . . When You Come, Make Reservations at the Hotel Where Government Personages Reside and Great Events Occur.

Single rooms from $4
Double rooms from $6

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R. L. Pollio, Manager

WASHINGTON, D. C.

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Guests at the William Penn enjoy the prestige of a good address. ▲ ▲ ▲ From coast to coast it is known as a hotel of distinction, possessing an atmosphere appreciated by experienced travelers. Yet rates are reasonable. ▲ ▲ ▲ William Penn Restaurants serve only the highest quality of food at moderate prices.

An Attractive ROOM and BATH for $3.50

HOTEL WILLIAM PENN
PITTSBURGH
1600 ROOMS . . . 1600 BATHS

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for highest quality bleached goods at lowest unit cost—

BECCO Concentrated **HYDROGEN PEROXIDE**

Up-to-date mills all over the United States have discovered these two **modern** essentials to a superior and economical bleach. **Becco** Concentrated Hydrogen Peroxide **plus Becco** Technical Service means a careful, accurate application of peroxide to **your** bleaching requirements. The result, to which so many mills bear testimony: the highest quality bleached goods at lowest unit cost. **Becco** can be adapted to the bleaching of any fabric—raw stock, yarns, knit goods, hosiery, piece goods, specimens, etc. Write for full details.

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BUFFALO ELECTRO-CHEMICAL CO.
BUFFALO, NEW YORK
BOSTON NEW YORK PHILADELPHIA CHICAGO CHARLOTTE
TORONTO MONTREAL

HERMAS

Vertical Brush

With any number or combination of wire fibre. Bristle, or sand rolls.

Has new V Belt drive, ball bearing throughout.

Brushes are instantly adjustable for heavy or light brushing, individual suction on each brush, cleans itself instantly.

Built in all widths, motor or belt drive or operated in tandem with other machines.

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HAWTHORNE, N. J.
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CAROLINA SPECIALTY CO., CHARLOTTE, N. C.

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We have built a reputation that is known over the entire South by our special attention to the minutest detail.

We are more than ready to answer any question that relates to your printing problems.

Write us and let us quote you on anything from a postal card to a full bound book.

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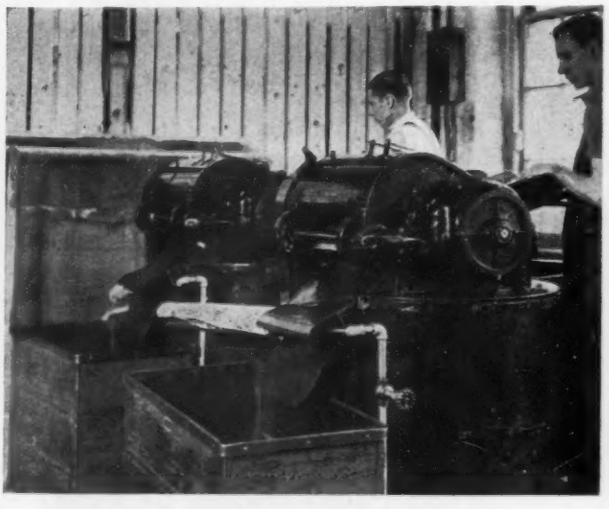

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3. Prevents bobbin injury caused by cutting.
4. Improves splintered bobbins considerably.
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6. Gives spinners more time for their jobs.

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It will not take you long to see where it makes a considerable saving in time, money and power—because it is 50% more efficient. The Centrif-Air Adjustable Cotton Cleaning System will make an impression on you with its three separations—the use of mechanical and centrifugal force to open cotton and remove dirt—air, to take out dust and pulverized leaf—the use of centrifugal force, air and gravity to free cotton from the heavier foreign matter.

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ATLANTA, GA.

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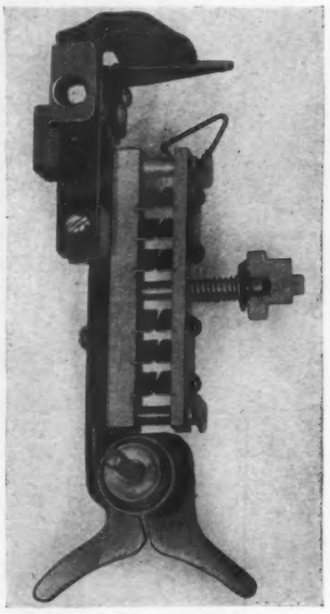

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The question of this year's cotton being exceedingly "trashy and dirty"? Accordingly are you turning out "trashy and dirty" yarns with excessive waste in your carding room? Does your product meet the exact requirements of your customers? Do you want to deliver a better product to your customers? If so, have your winders equipped with ECLIPSE YARN CLEANERS. They will guarantee you a *better* and *cleaner* yarn with no additional production cost.

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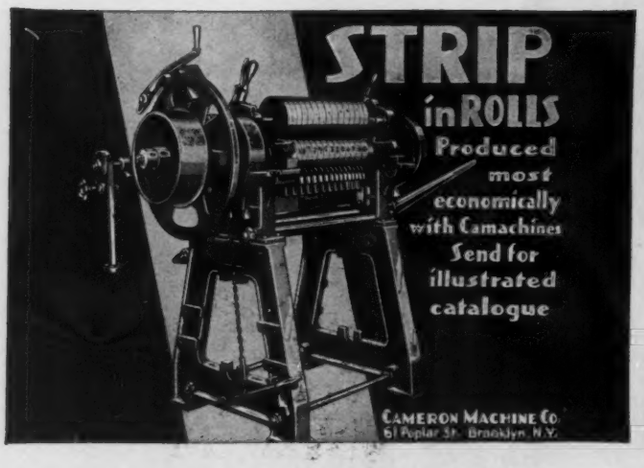
Yarn Cleaner



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Fully 25% of All Cotton Textile Spindles in the U. S. are operated on the Loper System.

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INDUSTRIAL ENGINEERS
Specialists in Textile Cost Methods Over 20 Years.
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Position wanted by young man at present employed. Experience with cotton, silk and rayon fabrics. Experience with crepes, satins, voiles, broadcloth, shirting, organdie and sheeting. Experience with C & K, Stafford and Whitin looms. The best of references. Address Box 100, c/o COTTON, Grant Bldg., Atlanta, Ga.

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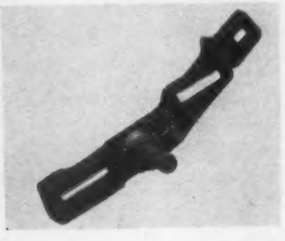

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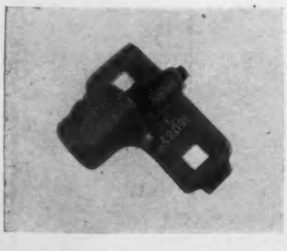
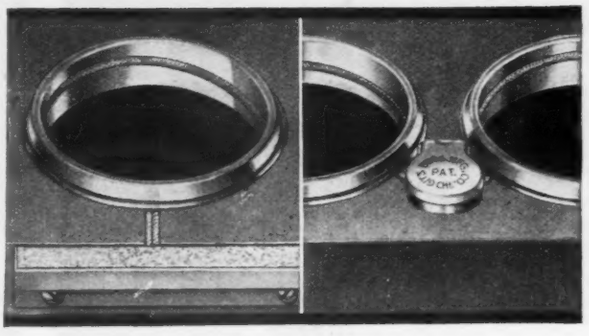


The Extra-wear Spinning Ring

DIAMOND FINISH



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Easily applied to existing twister rails

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1873

Advertisers' Index

A

Akron Belting Co. 51
Aldrich Machine Works 4
Alemite Corp. ..... *
Allis-Chalmers Mfg. Co. ..... *
American Enka Corp. 78
Anderson, Clayton & Co. 57
Arguto Oilless Bearing Co.... 98
Arkansas Co., Inc. 52
Armour & Co. ..... *
Armstrong Cork & Insulation Co. 33
Arnold Hoffman & Co., Inc... *
Atlanta Biltmore Hotel 96
Atlanta Envelope Co. ..... *
Atlanta Harness & Reed Mfg. Co. 98
Atwood Machine Co. ..... *

B

Barber-Colman Co. ..... *
Bedaux Co., Chas. E. ..... *
Boger & Crawford 72
Bond & Co., Chas. 53
Borne Scrymser Co. 93
Bosson & Lane, Inc. 91
Brinton Co., H. 79
Buffalo Electro-Chemical Co., Inc. 95
Butterworth & Sons Co., H. W. 8

C

Cameron Machine Co. 98
Campbell & Co., John 87
Centrif-Air Machine Co., Inc... 97
Ciba Co. 92
Clinton Corn Syrup Refining Co. 48
Corn Products Refining Co.... 93

D

Dayton Rubber Mfg. Co. ....Inside Front Cover
Denman Tire & Rubber Co. .. 62
Detergent Products Corp. 89
Dixie Mercerizing Co. ..... *
Draper Corporation 1
Dronsfield Bros., Ltd. 62
Dupont de Nemours & Co., E. I. ..... *

E

Eclipse Textile Devices Co.... 97

F

Fletcher Works, Inc. ..... *
Foster Machine Co. 7
Foxboro Co. 46
Franklin Process Co. ..... *

G

Gastonia Textile Sheet Metal Wks. 62
General Dyestuff Corp. 50
General Electric Co. 10
General Electric Vapor Lamp Co. 43
Goodyear Tire & Rubber Co... 31
Grasselli Chemical Co. ..... *

H

H. & B. American Machine Co. 37
Hemphill Co. ..... *
Henderson Fdry. & Mach Works 99
Hercules Powder Co., Inc.... *
Hermas Machine Co. 95
Hotel Mayflower 94
Hotel Pennsylvania 96
Hotel William Penn 94
Howard Bros. Mfg. Co. 2
Hurley-Johnson Corp. 92

I

Industrial Rayon Corp. 12
International Nickel Co. ..... *

J

Jacobs Graphic Arts Co. ..... *
Johnson, Chas. B. ..... *

K

Kali Mfg. Co. 93
Keever Starch Co. 91
Knitting Arts Exhibition 84

L

Laurel Soap Mfg. Co. 89
Lawrence Leather Co., A. C. .. 62
Lockwood Greene Engineers, Inc. 98
Logemann Bros. Co. 51
Loper Co., Ralph E. 98

M

Manhattan Rubber Mfg. Co. Division ....Inside Back Cover
Marston Co., John P. 62
McCord, H. M. 99
Merrow Machine Co. 63
Moccasin Bushing Co. 48
Morehead Mfg. Co. 59

N

National Oil Products Co. 9
Neumann & Co., R. 98
New York & New Jersey Lubricant Co. 63

O

Old Dominion Box Co. 87
Onyx Oil & Chemical Co. 39

P

Pearson & Sons Co., Jos. T... 89
Phila. Felt Co. 60
Phila. Quartz Co. 89
Powers Regulator Co. 61

Q

Quissett Mills 83

R

Reeves Pulley Co. ..... *
Robert & Co. .....Front Cover
Rohm & Haas Co., Inc. ..... *
Roy & Sons Co., B. S. 97
Royce Chemical Co. ..Back Cover
Royersford Needle Works, Inc. 86

S

Saco-Lowell Shops 35
Sargent's Sons Corp., C. G. .. *
Scholler Bros., Inc. 85
Scott & Williams, Inc. 65
Seydel-Wooley Co. ..... *
Sherwin-Williams Co. ..... *
Showalter Printing Co., A. J... 95
Sipp-Eastwood Corp. 48
S. K. F. Industries, Inc. ..... *
Solvay Sales Corp. 92
Sonoco Products Co. 8
Standard Brands, Inc. ..... *
Standard-Coosa-Thatcher Co.... 66
Standard Trump Bros. Machine Co. ..... *
Steel Heddle Mfg. Co. 55
Stein, Hall & Co., Inc. ..... *
Stewart Iron Works Co., Inc... 92

T

Terrell Machine Co. 95
Textile Finishing Mchry. Co... *
Textile Machine Works 86
Three-In-One Oil Co. ..... *
Torrington Co. .....75 and 76

U

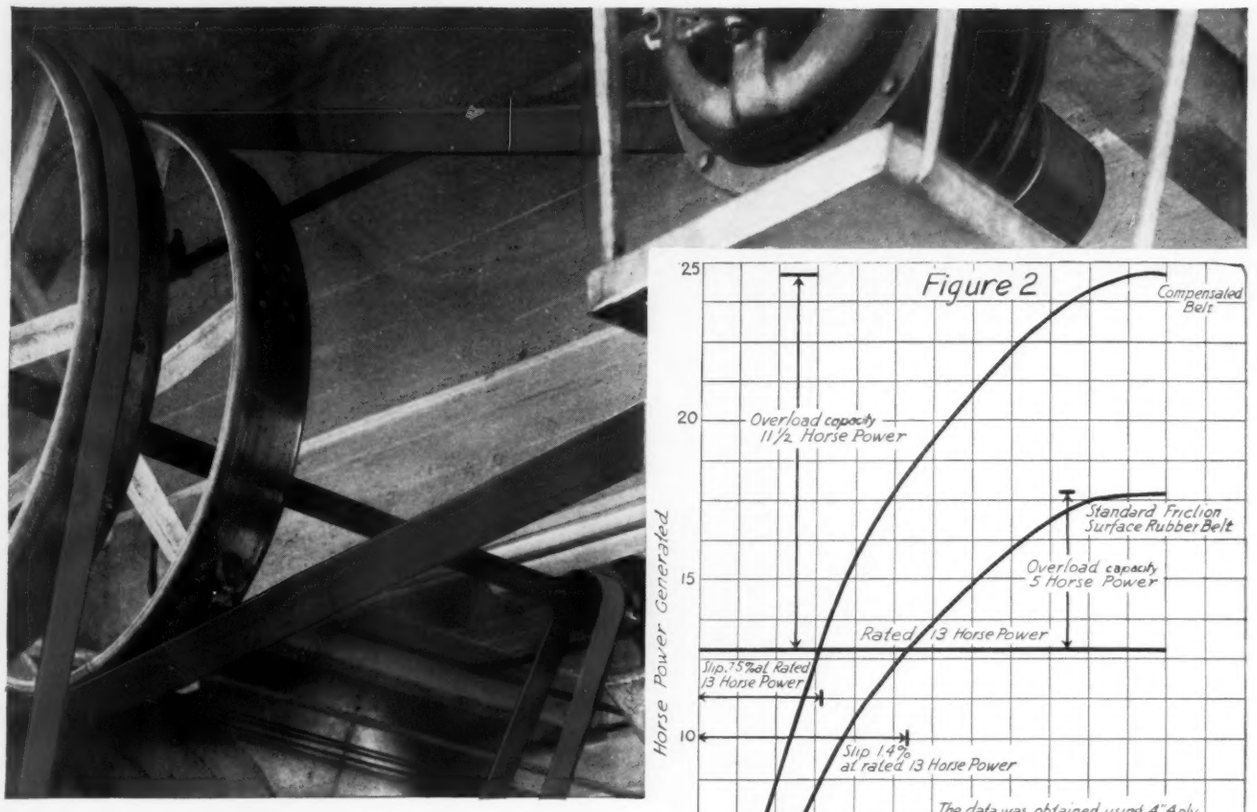
Union Special Machine Co. ... 41
Universal Winding Co. ..... *

V

Veeder-Root, Inc. 60

W

Want Ads 98
Waterman Currier & Co. 85
Weimar Bros. 98
Whitin Machine Works 5
Whitinsville Spinning Ring Co. 99
Wildman Mfg. Co. 70
Williams & Sons, I. B..... 6
Wolf & Co., Jacques ..... *



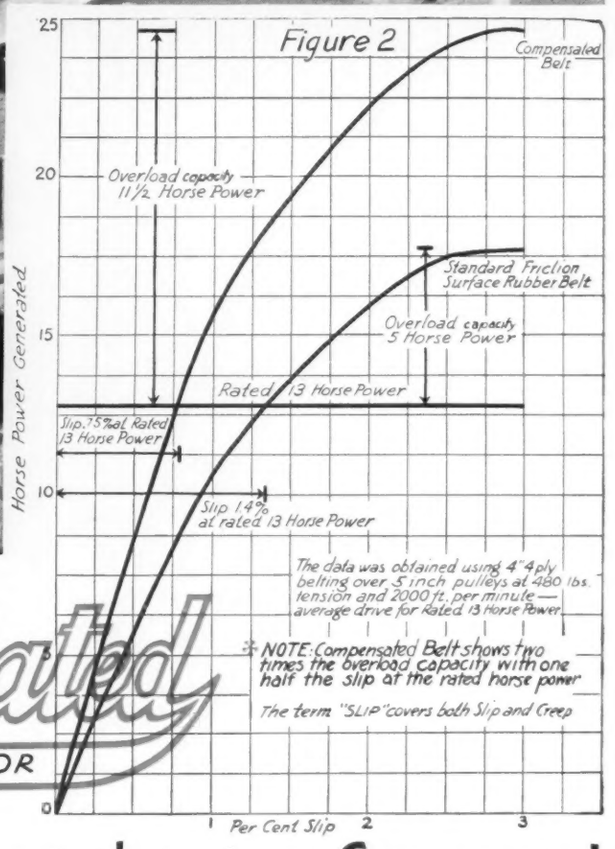


Figure 2
Compensated Belt
Overload capacity 11½ Horse Power
Standard Friction Surface Rubber Belt
Overload capacity 5 Horse Power
Rated 13 Horse Power
Slip 7.5% at Rated 13 Horse Power
Slip 14% at rated 13 Horse Power
Horse Power Generated
25
20
15
10
5
0
1
2
3
Per Cent Slip
The data was obtained using 4" 4 ply belting over 5 inch pulleys at 480 lbs. tension and 2000 ft. per minute — average drive for Rated 13 Horse Power
* NOTE: Compensated Belt shows two times the overload capacity with one half the slip at the rated horse power
The term "SLIP" covers both Slip and Creep

Compensated
PAT. APPLIED FOR
TRADE MARK

A new engineering development that gives Compensated Belt twice the overload capacity* of standard rubber belting.

Compensated Belt has a special pulley surface with a high coefficient of friction which permits *low tension* operation of the belt and still retains twice the overload capacity of standard rubber belting.

Virtual elimination of bearing, shafting and fastener troubles is a direct result of the special compensated features (Pat. applied for) embodied in this truly advanced type of transmission belting.

Compensated Belt is exclusively a Manhattan development.

Write for full information

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Air Hose	Suction Hose
Acid Hose	Oilless Bearings
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Rubber Covered Rolls

The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc.
Executive Offices and Factories, Passaic, New Jersey

what a finish!

SOFT - MELLOW - DRAPY FABRICS *are* YOURS *with*

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PURE Dye or Weighted Silks—Rayons or Cotton goods! They all benefit by the fine penetrating and levelling action of VELVORAY No. 1 in the dye-bath. VELVORAY is an ***all-purpose*** oil — invaluable to dyers and finishers.

VELVORAY No. 1 as a finish for Rayons and Silk Crepes produces a softness and the graceful, drapy effects which ***sell*** the fabrics.

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